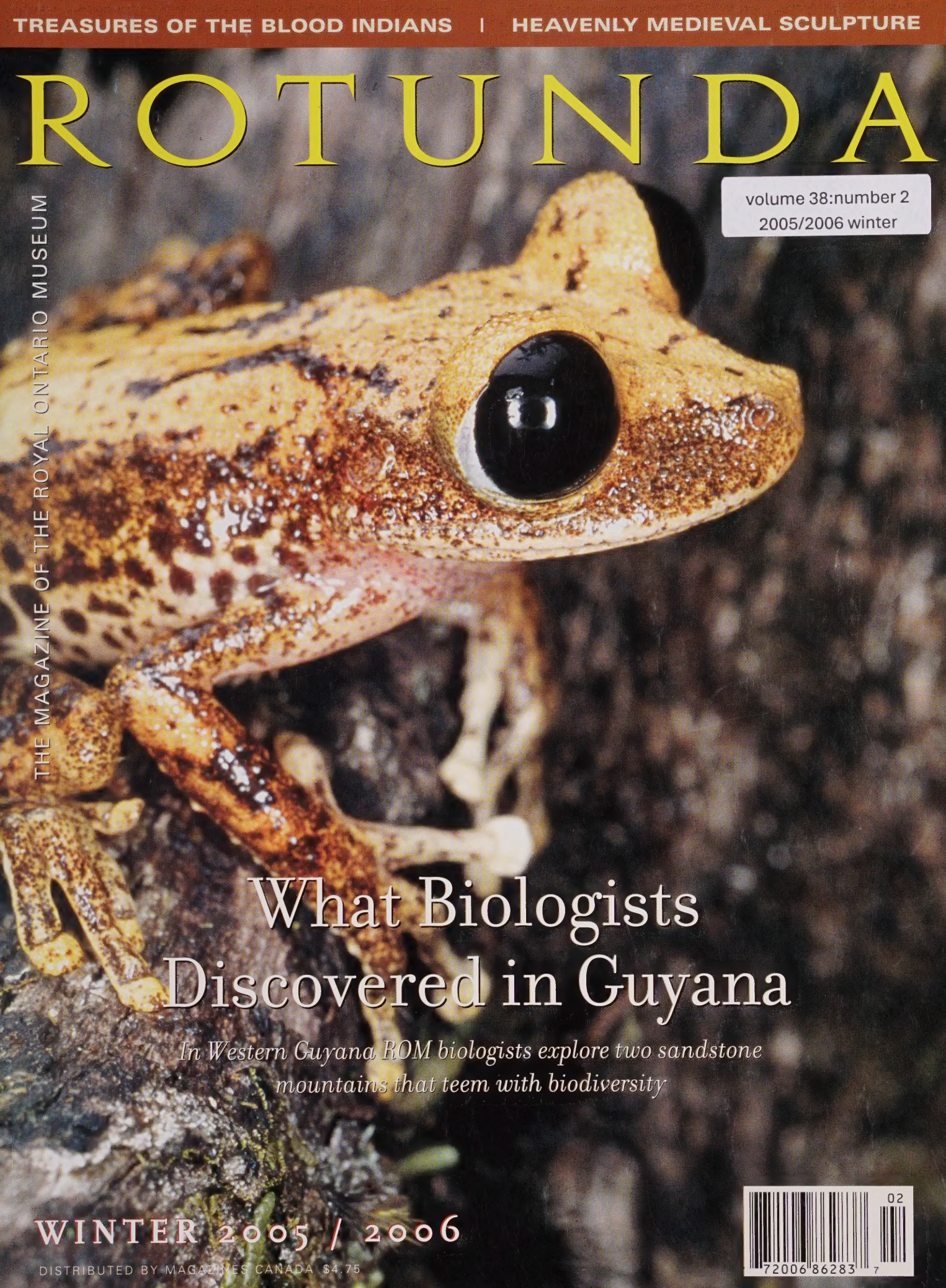
TREASURES OF THE BLOOD INDIANS | HEAVENLY MEDIEVAL SCULPTURE

ROTUNDA

volume 38:number 2
2005/2006 winter

THE MAGAZINE OF THE ROYAL ONTARIO MUSEUM



What Biologists Discovered in Guyana

In Western Guyana ROM biologists explore two sandstone mountains that teem with biodiversity

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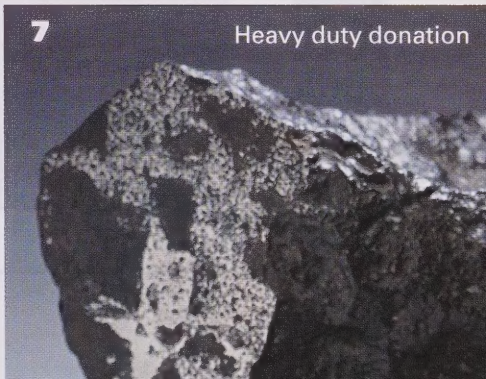
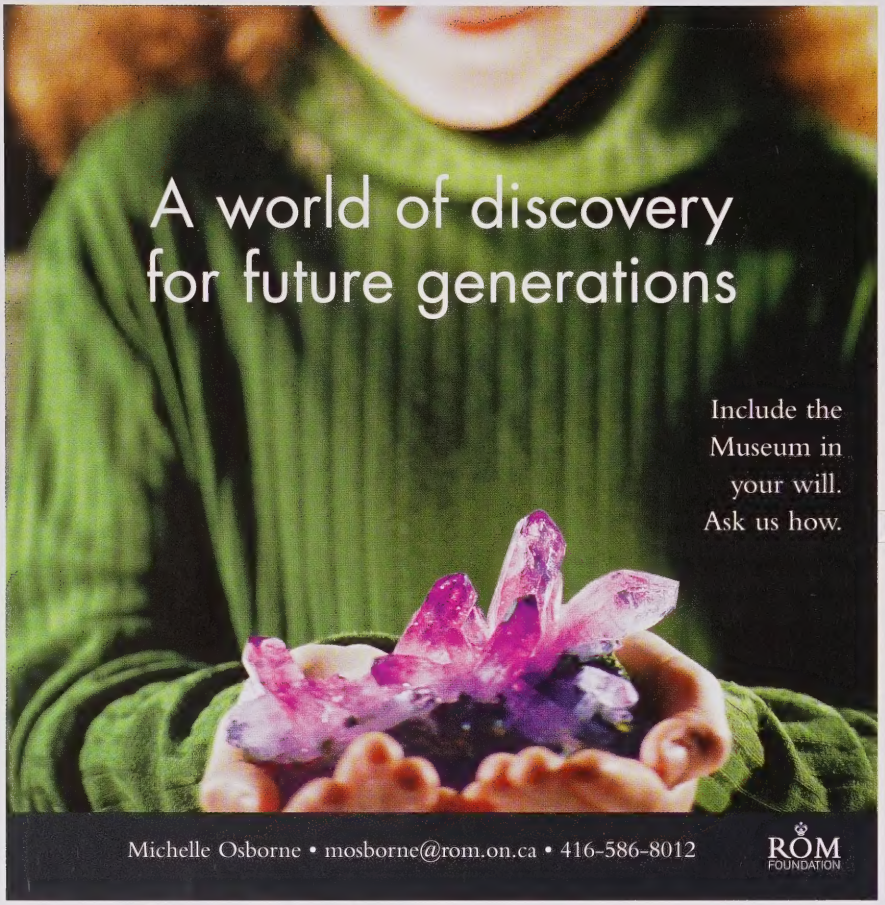


COVER: TREE FROG *MYERSIOHYLA KANAIMA* FOUND IN GUYANA. PHOTO: AMY LATHROP



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The World of Charles Trick Currelly

Former ROM librarian Julia Matthews examines the forces that influenced the ROM's first director

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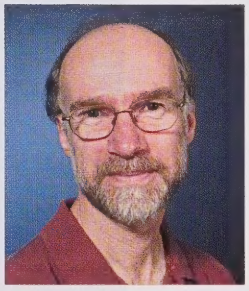
BRIAN BOYLE, ROM

K. Corey Keeble

Western Art and Culture Section, ROM Department of World Culture

BORN IN WINNIPEG, Corey ("Medieval English Alabasters") is a graduate of United College (now the University of Winnipeg), where he majored in English and History. Upon completion of postgraduate art-history studies at the Courtauld Institute of Art in England, Corey joined the ROM. He is a well-known writer and speaker on a wide variety of subjects, with more than 100 published catalogues and articles to his credit. His most recent publication is a catalogue of the Hon. Henry N. R. Jackman Collection of Toy Soldiers in the ROM, published in 2001. Currently, he is working on publications on gunlocks, stained glass, Winnipeg architecture, and crossbows. Also a recognized authority on the history of Renaissance and baroque bronze sculpture and European arms and armour, Corey's interests include Medieval sculpture, Gothic and Gothic Revival architecture, medieval and modern stained glass, the Russian Orthodox Church, icons, Judaica, ships (he is a well known lecturer on the *Titanic*!), and classical ballet.

Corey speaks four languages and reads several others, and has studied both Hebrew and Yiddish for work on the ROM's new European Judaica Gallery. He has led many international tours, and served as a resource person and guide on ROM Travel tours. In Toronto, he has led tours of local churches and synagogues and city walking tours, and recently he has branched out to American cities. He is an avid lecturer on Toronto architectural history with public-speaking engagements numbering in the hundreds.



Ross MacCulloch

Herpetology Section, ROM Department of Natural History

SINCE 1982, Ross ("A Tale of Two Tepuis") has been assistant curator of herpetology. He has been conducting fieldwork in Guyana since 1990, adding many new and interesting specimens to the ROM's collections. His current research concentrates on biodiversity and zoogeography of amphibians and reptiles of the Guiana Shield region. Ross is also author of the *ROM Field Guide to Amphibians and Reptiles of Ontario* (2002).

Arni Brownstone

Anthropology Section, ROM Department of World Culture

ARNI ("Treasures of the Bloods") joined the ROM's Ethnology Department in 1974. His current research has two main threads. The first is the formalistic analysis and ethnohistorical study of Plains Indian pictographic paintings. The second explores archival sources and published literature to shed light on specific collections of Plains Indian artifacts.

The story of White Calf's artifacts grew out of the author's research for "Ancestors," an exhibition held alongside the Blood (Kainai) Reserve at the Sir Alexander Galt Museum in Lethbridge, Alberta, in 2002. The Deane-Freeman Collection, divided between the ROM and the British Museum, formed the basis of the exhibition. Most importantly, the collection's documentation connected the names of some 90 Blood individuals to their former objects. White Calf's name was, unfortunately, conspicuous by its absence. Arni is hoping to remount "Ancestors" in the ROM's new temporary exhibition space, this time with the loan of White Calf's war regalia from the American Museum of Natural History.

EXPLORA

BRIAN BOYLE, ROM / ROM 57654

Seeing Red

The large size and iridescent colour of a ROM ammonite make it prime viewing material

AMMONITES ARE AN EXTINCT GROUP of cephalopod molluscs related to modern-day squids and octopuses. Their shells are found commonly in marine rocks about 250 to 65 million years old. Thanks to the generous assistance of the Louise Hawley Stone Charitable Trust, the ROM's Paleobiology Division recently purchased this spectacular iridescent ammonite fossil from Alberta.

Named after Ammon, the Egyptian god with ram's horns, ammonite shells are usually formed as a flat, tight coil. While some have reached diameters in excess of 3 m (9¾ feet), large intact shells like this one are rare. In the ROM's collection, most complete specimens measure only 30 cm (11¾ inches) or less. Like those of many molluscs, ammonite shells contained a layer of nacreous aragonite—a form of calcium carbonate composed of stacks of microscopic platelets that reflect light internally to produce an iridescent mother-of-pearl interference pattern. Rarely is this layer preserved in the fossil. Trace elements, such as iron, copper, and chromium, can add rich reds, greens, blues, and yellows to the iridescence.

The recently acquired *Placenticeras intercalare* fossil, from the St. Mary's River area of Alberta, lived about 71 million years ago in the Western Interior Seaway, a vast inland sea that once bisected the continent from north to south. The shell measures a remarkable 65 cm (25¼ inches) across and shows flashes of green at certain angles. Watch for it in the ROM's new Age of Dinosaurs gallery.

—Janet Waddington

The stag beetle *Lucanus formosanus*

BRIAN BOYLE, ROM

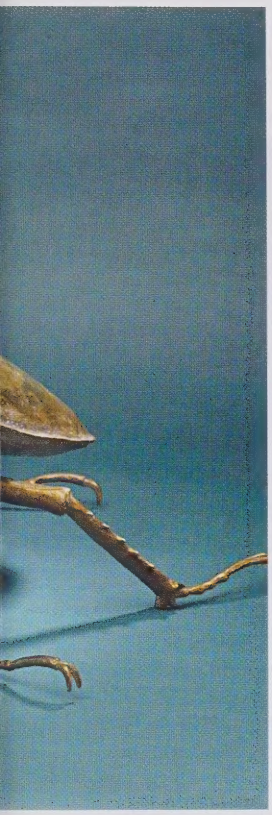
Size

Especially in th

INSECTS HAVE A PR problem! Because of the essential ecological roles they play in all terrestrial ecosystems they should be universally admired and appreciated. Part of the reason they're not is their small body size. But it is precisely this that has allowed them to become so incredibly successful. Some 10 million species of insects have evolved and adapted to a largely furtive existence during the last 400 million years. Only rarely do they break out of their Lilliputian mould—the longest insect is a half-metre (1½-foot) walking stick, and the heaviest, the giant weta from New Zealand, which at 71 g (2½ ounces) is only about the size of a red-winged blackbird.

Insects' small size presented a challenge for curators developing exhibits for the Renaissance ROM Gallery of Evolution. While insect examples support many of the gallery's main themes, they are difficult to see. Two solutions are planned—enabling visitors to view groups of specimens from close

T I O N S



The weevil
Trachelophorus giraffa

Matters

miniature world of insects

range, and using large iconic sculptures.

Larger-than-life bronze sculptures were created by Canadian sculptor George Foster after the compact body form and structural diversity of beetles caught his attention some 20 years ago. Working closely with entomologists, he has created an accurate collection of exotic beetle sculptures. The ROM recently purchased five of these sculptures for the new Gallery of Evolution thanks to the generosity of the Louise Hawley Stone Charitable Trust. The bronze stag beetle (*Lucanus formosanus*; above left) is almost 1 m (3¼ feet) in length—about 15 times life size. It will illustrate the highly successful beetle body plan, which was further elaborated by the weevils, the most diverse family of beetles with more than 80,000 described species. An elongated snout is the defining feature of weevils, aptly illustrated by the half-metre (1½-foot) sculpture—about 30 times life size—of *Trachelophorus giraffa* (above right).

—Chris Darling

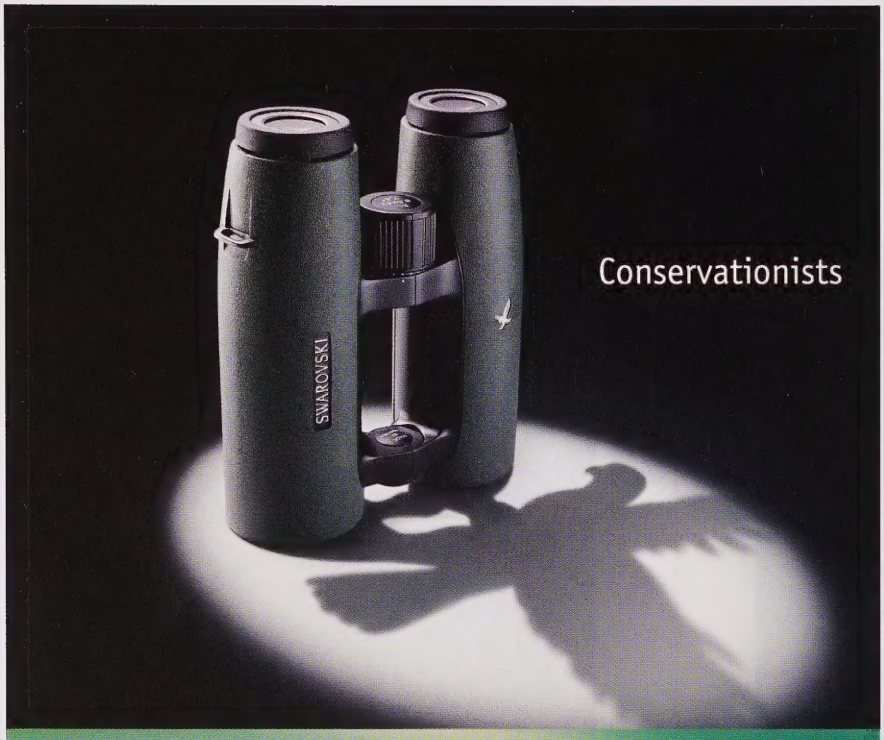
BRIAN BOYLE, ROM / ROM 5562

U Who?

Extinct mammal would have made the A-list for most odd-looking character

AFTER DINOSAURS WENT EXTINCT about 65 million years ago, the world entered the so-called "Age of Mammals." Early in this era, mammals evolved into numerous varied types, many of which have no living relatives and so are unfamiliar to us today. One of these groups was the Dinoceratans (meaning "mighty horns"), some of which were the largest plant-eating mammals of their time. Recently, the ROM's Paleobiology Section purchased a cast skull of one of these great beasts, called *Uintatherium*, (pronounced "You-in-tah-THEER-ee-um") for the new Age of Mammals gallery. About the size of a rhinoceros in life, this mammal was even more impressive than a rhino thanks to its sabre-like canine teeth—an odd feature for a herbivore. The teeth were probably used for threat displays, not for stabbing, as the rest of *Uintatherium*'s teeth look completely unlike those of a carnivore but resemble those of many herbivores. Like living cattle, the *Uintatherium* lacks teeth at the front of its upper jaw. On its head, the series of preserved "horns" most likely had a horn sheath on top of the existing bony core (as do living antelopes, for instance), or maybe a tuft of hair (as do living giraffes), which would have given the animal an even more bizarre (by modern-day standards, of course!) appearance in life.

—Kevin Seymour



Nature in Focus

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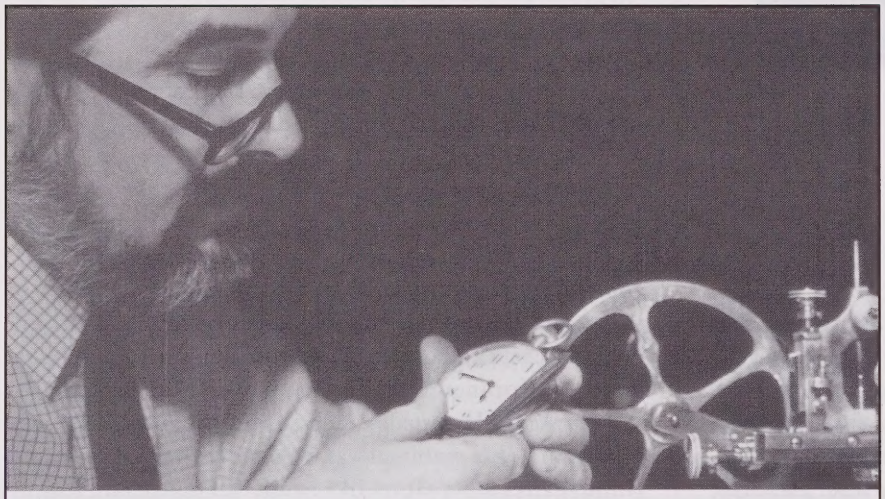

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Rotunda, the magazine of the Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6, or telephone 416-586-5585, e-mail lee-anne@rom.on.ca
ROM Web site: www.rom.on.ca

Published three times per year by the Royal Ontario Museum. © The Royal Ontario Museum, 2005. Printed and bound in Canada. Indexed in the Canadian Periodical Index and the Canadian Magazine Index and available on-line in the Canadian Business & Current Affairs Database ISSN 0035-8495. Canadian Publications Agreement # 40068986.

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SUBSCRIPTIONS & SINGLE COPY SALES
Subscriptions cost $15 (3 issues) including GST, outside Canada add $7 for postage and handling; single copies cost $4.75 plus GST. All circulation and subscription inquiries should be addressed to *Rotunda*, Royal Ontario Museum, 100 Queen's Park, Toronto, Ontario M5S 2C6. Phone: 416-586-5546, Fax: 416-586-5649

PUBLISHED BY
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Messengers from Space

Recent donations provide evidence of how the planets and the universe formed.

BRIAN BOYLE, ROM / FOR NWA468: M50082 / FOR NEA0001: M50080

Meteorites donated by Dr. David Gregory and Dr. John Ayerst.

MALCOLM BACK

Meteorites are "messengers" from space. When they fall to Earth, they bring with them evidence of how and when they formed. Almost all these rocks are made of material that formed early in the history of our solar system, about 4½ billion years ago—half a billion years older than the oldest preserved terrestrial rocks. A rare handful of meteorites are believed to be bits of the moon and Mars, knocked off by cataclysmic events. Wherever they originate, meteorites give us insight into the origins and evolution of our Earth and of the entire solar system.

Over the last eight years, the ROM's Department of Natural History has been very fortunate to receive donations of many rare and beautiful meteorites from Dr. David Gregory and his family. Dr. Gregory (a family physician) traces his passion for meteorites and for the Royal Ontario Museum back to a Grade-8 school visit to the ROM in 1964 where he was challenged to lift a large piece of iron meteorite that was on display. And lift it he did! Now, he is giving back to the Museum with gifts of these wonderful space rocks, purchased at the Tucson Gem and Mineral show, many of which will be displayed in the new Inco Limited Gallery of Earth's Treasures, due to open in 2007.

One of the most spectacular pieces from Dr. Gregory's donation is labelled NWA468. Meteorites are named for the

place they fell or were found. This meteorite was found in 2000 in northwest Africa, the 468th unique meteorite found in that area. After scientists carefully study and characterize them, new and unique meteorites are named by the Nomenclature Committee of the Meteoritical Society. Investigators found that NWA468 is a new, silicate-rich iron meteorite with an unusual chemical composition. It is believed to have formed from a carbon-rich asteroid that melted because of impacts in space. The study of NWA468 is providing a better understanding of the genesis of a related class of rare meteorites.

The largest piece of NWA468 measures 16 x 16 x 14 cm (6¼ x 6¼ x 5½ inches) and weighs 5675 g (12½ pounds). Its beautiful black fusion crust and telltale regmaglypts (flight marks that resemble thumbprints) both result from the meteorite's fiery flight through Earth's atmosphere. The exterior also shows a patina from exposure to the elements while in the desert. The interior of the meteorite, revealed by two saw cuts, shows a clear segregation between the iron-nickel metal and the silicate minerals that make up the majority of the meteorite.

Dr. John Ayerst, introduced to the ROM by his colleague Dr. Gregory, recently donated another very important meteorite. Known as NEA0001, this meteorite is a piece of the moon. The first lunar meteorite in our collection, it is also the first designated by the Meteoritical Society as coming from northeast Africa. It was found in northern Sudan in 2002.

At 59.22 g (2 ounces), the ROM's piece of NEA0001 is the largest existing fragment of the 296 g (10.4 ounces) of this meteorite fall that has been recovered. It measures 8 x 2.5 x 2 cm (3 x 1 x ¾ inch), and is only the 25th lunar meteorite recorded. Originating in the lunar highlands, it is classified as a polymict regolith breccia with minor mare basalt component: in layman's terms, this means that countless impacts pulverized and partly melted the surface of the moon to form a lunar "soil" of rock fragments, dust, and glass. The heat and pressure of one of the last impacts welded the soil together to form this rock.

Likely, NEA0001 was ejected from the moon by the impact of another meteorite, and eventually fell to Earth as a meteorite itself. The visible white fragments are plagioclase feldspar, a mineral that is also common on Earth. The meteorite's exterior exhibits a typical blackish fusion crust, as well as a patina that developed from exposure to wind and sand in the desert.

Both meteorites have been certified by the Canadian Cultural Property Export Review Board under the terms of the *Cultural Property Export and Import Act*. Ongoing study of these and other new meteorites will continue to reveal new information about our world.

Malcolm Back is a technician in the Earth Sciences section of the ROM's Department of Natural History.

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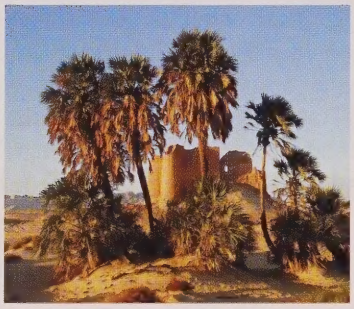

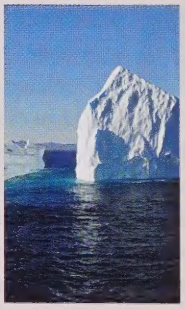

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Bats in the Attic

How to survive close encounters of the winged kind.

BURTON LIM

Ironically, as development in cities and towns continues, urban sprawl can bring us into closer contact with nature. Whether it is raccoons foraging around our garbage cans at night, or skunks ambling across the street as if they belong in the 'hood, sometimes it is not immediately obvious if we are invading their space or the other way around. While bats are not as pervasive an intruder as other animals in the city, their appearance in the attic or cottage will become increasingly common as we convert forested areas for human use.

That's because the forest is a bat's natural home, with roosting sites ranging from caves to holes in trees. But a nice warm house can also be an ideal summer shelter for a maternity colony of bats—a large congregation of females who group together after hibernation to give birth to their young.

Of the eight bat species found in Ontario, only two commonly live in buildings. Going by the imaginative names little brown bat (*Myotis lucifugus*) and big brown bat (*Eptesicus fuscus*), relatively speaking, the former is smaller with a forearm length—a commonly used indicator of size for bats—usually less than 40 mm (1½ inches) and with long glossy brown fur. The latter is larger, with a forearm length usually greater than 40 mm (1½ inches) and with shorter brown fur that is not noticeably glossy. Unless you compare them up close and side by side, however, the differences can be difficult to discern.

Although both bats commonly migrate to caves in surrounding regions for winter, in the summer it is usually the big brown bat that people find inside their homes. They won't necessarily be in the attic because males tend to roost under shutters, near eaves, or in the chimney. Typically, the little brown bat is found in buildings in more rural settings.

In Ontario, bats typically overwinter in caves where the ambient tem-

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perature is usually just above freezing. During hibernation, their body temperature drops to match the surrounding temperature in concert with a decrease in pulse, breathing, and metabolic rate. If the bats are aroused, vital functions increase towards normal, but precious fat reserves are used up, jeopardizing their survival through the remainder of the winter.

It may not seem like it when they are in your house, but bats are beneficial to the environment. They are the primary predator of nocturnal insects such as moths, beetles, and mosquitoes. During a night of foraging, some bats may consume the equivalent of their body weight in food, especially before winter hibernation. By eating agricultural pests and annoying backyard insects, bats are economically and socially beneficial as well.

Bats have gotten a bad rap as bloodsuckers. In fact, only three species of vampire bats exist, all living in Central and South America. Although a fear of rabies is associated with bats because, as with any mammal, bats can transmit the virus, the incidence of bat-to-human transmission in house-dwelling bats in Ontario is infinitesimally small. Likewise, the respiratory disease histoplasmosis, caused by a fungus that can grow in animal droppings (usually birds), is rare in Canada. So, fears associated with bats are unwarranted, especially if common-sense precautions are taken, such as never handling bats (because they will bite in self-defence) and using a proper respiratory mask if removing large quantities of dung from your house.

When bats get into your home's living quarters or are producing strong odours or noises, it might be necessary to exclude them from the building. The key word is exclusion, not extermination, because bats do keep insect populations in check.

For small jobs where only one or two openings allow the bats inside, exclusions can be done by anyone with a knack for handiwork. Older homes or cottages, however, may require a professional bat excluder who will seal all the holes. To properly exclude bats, a number of guidelines must be followed, including using one-way valves (netting or tubes) kept over the openings for a few days to ensure that all bats have left. It is important to do the exclusion in spring or fall because during the summer there will be young inside and during winter there may be hibernating bats.

Once you've carried out an exclusion you may consider providing an alternative roosting site—a bat house, which can double as evening entertainment and education. Ideally, a bat house should be installed at least a few weeks in advance of the bats' return in the springtime when they will be looking for summer roosts. Several other criteria will help attract bats to the bat house: ensure the design has a minimum height of 60 cm and a width of 35 cm (2 feet by 14 inches) with openings or roosting gaps of 2 cm (¾ inch) to deter an uninvited wasp's nest; mount it on the side of a house or on a metal pole at least 4 metres (12 feet) above the ground; make sure it faces south with as much sun exposure as possible (at least 10 hours); and clear any obstructions.

With a bit of tolerance and acceptance, bats and humans can co-exist in a mutually beneficial relationship. To a certain degree, bats can adapt to changes in their environment, such as urban encroachment, while still continuing to fill their important niche in the ecosystem. Not only are bats good, but, as is so often heard from kids leaving the ROM's Bat Cave, "Bats are cool!"

Burton Lim is assistant curator in the Mammalogy section of the ROM's Department of Natural History.

FURTHER READING

A couple of excellent resources on bats are the book *Bats in Question* by Don Wilson, published by the Smithsonian Institution Press, 1997, and the Web site of Bat Conservation International (http://www.batcon.org).

Whorled View

The elaborate shell of this 390-million-year-old fossil evolved to help the animal remain buoyant as it swam through the Devonian sea.

Dear ROM Answers,

While doing some landscaping in Huron County, we encountered a fossil or petrified rock that is about the size of four fists. It looks like a tail of some sort, with a series of distinctive markings. Totally amazing! Where do we find out what it was and how old it is? Please advise also on how we can clean and preserve it.

Thanks,
Cheryl and Bill Tong

Dear Cheryl and Bill,

Thank you for your quick reply to my questions and for sending excellent photographs. There's absolutely no doubt of the identity of your fossil—it is a very fine specimen of a cephalopod mollusc, more precisely, a nautiloid. The best match is with an extinct species usually called *Heracloceras inelegans* (but often referred to in older literature as *Gigantoceras inelegans*). In age, your specimen is Middle Devonian, making it approximately 390 million years old. While fossils of *Heracloceras* are not particularly rare in Devonian rocks in southwestern Ontario, I can't recall having seen one quite as complete and well preserved as yours.

In an earlier PaleoScene, we talked a bit about fossil nautiloids (see "Living Fossil's Ancient Relative," *Rotunda*, Winter 2001, p. 44), but the background is well worth revisiting. Most living cephalopod molluscs—including octopuses and squids—have soft, muscular bodies, although a few have mineralized structures within their tissues—the cuttlefish's "cuttlebone" of budgie-cage fame, for example. While other common molluscs, such as snails and bivalves (clams, oysters, mussels, etc.), secrete permanent, mineralized shells *external* to their bodies, the only modern cephalopod to have an external shell is the chambered nautilus, whose precisely spiralled conch represents one of the most elegant and admired motifs in nature.

Above: Bill and Cheryl Tong's specimen of *Heracloceras inelegans*. The internal mould clearly shows the spiral coiling and traces of the internal cross walls.

C. AND B. TONG

DAVE RUDKIN

Reduced to a small handful of species restricted to western Pacific waters, living nautilus represents the last surviving remnant of an ancient and once-diverse lineage, which included *Heracloceras*. The oldest nautiloid fossils are found in rocks about 500 million years old. In early forms, the shell is usually a simple, straight cone divided into a series of compartments, or "chambers," by short, curving cross walls. The compart-

ments all connect via an internal tube-like structure. The largest chamber, at the shell's open end, housed the soft parts of the animal. When alive, these animals probably looked something like squids stuffed into elongate ice cream cones!

Later, other ancient nautiloids developed curved, bulbous, or, like your specimen, spirally coiled shells. But after about 250 million years ago only the spiral forms are found in the fossil record. In many spiral-shelled nautiloids, such as *Heracloceras*, the coiling is clearly visible. Living nautilus, however, grows in such a way that successive whorls of the shell obscure earlier ones; the pattern can only be seen clearly when the shell is cut in half.

The elaborate, chambered shell evolved to allow nautiloids to remain neutrally buoyant in water by carefully balancing the amount of trapped air and liquid in the chambers. This would have helped these active scavengers and predators hunt down and consume other sea animals. Nautiloids also had (and have) grasping tentacles and powerful beak-like mouthparts to help with the hunt.

The remains of *Heracloceras* are now found as fossils in sedimentary rocks that were once deposits on an ancient seabed. About 390 million years ago what is now Ontario was located in southern subtropical latitudes and inundated by a shallow warm sea. Nautiloids and other inver-

WHAT COLOUR IS YOUR NAUTILOID?

The Winter 2004/2005 issue of *Rotunda* relates the accidental unearthing of a fragment of ROM history in an unexpected place: a couple of 90-year-old labels marking a set of Devonian-age snails turned out to be recycled admission tickets from the ROM's opening in 1914. But who'd have guessed that the same set of fossils would yield up a second notable find?

BRIAN BOYLE, ROM / ROM 57706

Above: Recently rediscovered in the ROM's collections are specimens of *Michelinoceras? anguliferum* from Paffrath, Germany, showing remnants of 390-million-year-old pigment patterns shaped like chevrons. The larger of the two specimens (left) is 7.5 cm (almost 3 inches) long.

The latest treasure came to light as I continued my look through the exquisite fossils collected more than a century ago from the Paffrath area in Germany. Dozens of different kinds of Devonian-age brachiopods, bryozoans, and corals make up much of the fine collection, but the most interesting are the fossil molluscs, including two small nautiloid cephalopods—ancient straight-shelled cousins of the living chambered nautilus. Their presence in the collection, in itself, is not unusual. The startling thing is that on their outer surfaces, these specimens carry faint transverse stripes arranged in very distinctive chevrons. These ghostly zigzag bands are remnants of the original patterns of shell pigment, still preserved after 390 million years.

BRIAN BOYLE, ROM

Above: A living specimen of the chambered nautilus.

Their true colour is, of course, long gone. Most of the organic molecules that produce vivid and variable hues in the shells of living molluscs tend to break down quite quickly after death. Even the underlying traces are relatively ephemeral . . . muted spots, stripes, or geometric patterns eventually vanish completely as the shell matrix breaks down over weeks, months, and years. Thus, in the deep fossil record, where shell ages are measured in hundreds of millions of years, preserved pigment patterns are extremely uncommon.

DAVE RUDKIN, ROM

Above: The shell of the chambered nautilus (*N. pompilius*) shows irregular colour banding on the upper part and pale colour on the lower surface—an effective camouflage combination.

Only a handful of localities in the world are known to yield fossil nautiloids with preserved pigment patterns. The Paffrath was the first to be documented in the scientific literature when, in 1842, biologists Adolphe d'Archiac and Edouard de Verneuil described and published a single nautiloid specimen from

tebrates made their home in this sea as did some of the earliest large vertebrates (animals with backbones)—including jawed fish that competed with nautiloids as the top predators.

Your fossil was formed when loose sediment and mineralizing solutions filled an empty *Heracloceras* shell buried in the Devonian seabed. The shell completely dissolved away, leaving a solid internal mould as part and parcel of the surrounding limestone (called the Dundee Formation).

Fortunately, your fossil requires little long-term cleaning and care. You can wash the whole block in warm water with a little liquid dish detergent. Gently remove loose dirt and rock fragments with a soft bristle brush (an old toothbrush works well), then rinse to get rid of any soap residue. I wouldn't advise trying to chip away the limestone matrix—this can be done safely only in a properly equipped preparation lab.

It isn't necessary to treat the fossil's surface, so resist the temptation to paint on a clear shellac or varnish; such coatings typically obscure detail and can often cause damage. The best way to prevent scratching, marking, or dulling is simply to keep hard objects away from your specimen and avoid handling it too much.
Enjoy your fossil!

Dave Rudkin is assistant curator in the Paleobiology Section of the ROM's Department of Natural History.

this locality. A note at the end of their description of the species, which they named *Orthoceras anguliferumm*, declares: "very rare." The ROM's two little nautiloids are the same species, although the formal name is now *Michelinoceras? anguliferum*.

DAVE RUDKIN, ROM

Above: A section through the chambered nautilus's elegantly spiralled shell reveals the partitioned interior behind the large chamber where the animal lived.

I've been able to track only four other Paffrath specimens with pigment patterns (for a total of seven, including ours), although the solid documentation fizzles out in 1930. There must be more out there somewhere, but these are rare fossils, indeed.

The chevrons on all of them are visible only on half the shell, presumably marking the upper surface. This is exactly as expected if the patterns functioned as disruptive camouflage for these animals, which swam horizontally in clear, well-lit waters. The zigzag stripes would break up the shell's outline, making it difficult to spot from above; from below, the pale lower shell would be nearly invisible against the sun-lit surface.

PAINTING BY MARIANNE COLLINS

Above: Reconstruction of Paleozoic nautiloids swimming over an ancient reef. These forms are shown with narrow, straight colour bands running the length of the shell.

We are left to speculate as to the true colours of the little Devonian nautiloids. Were their chevron stripes a version of the rich orange-browns that characterize living species of nautilus? Or were they something more, or less, flamboyant?

According to our catalogue records, Byron Edmund Walker originally donated many of the ROM's Paffrath fossils to the University of Toronto's Palaeontological Museum in 1910, the same year he became Sir Edmund. The material ultimately became part of the founding collections of the Royal Ontario Museum of Palaeontology, established on April 13, 1913. Just under a year later, H. R. H the Duke of Connaught officially opened the original wing of the ROM, and the fossils finally moved into the building.

So, in the curious circular nature of this tale, we are back to the printed admission tickets for that memorable March 1914 opening—a small number of which were recycled as labels for some of Walker's Paffrath fossils.

—DMR

Medieval English Alabasters

Tracing the course of alabaster carving—from its early-1300s flowering to its destruction some 200 years later. By R. Corey Keeble

In Medieval England, alabaster sculpture rose by degrees to a position of unique importance in the production and decoration of tomb figures and devotional imagery, including carved relief panels for altarpieces. While some early alabaster carving in late Romanesque, or Norman, style has been recorded from the mid-1100s, its greatest period in England began in the early 1300s, lasting for some 200 years.

As devotional items, carved alabasters were so popular that they were marketed not only by sculptors' workshops and the carvers themselves, but by travelling salesmen hired for the purpose. Legal disputes between the workshops and their salesmen were known to occur, one of which took place in 1491 when Nicholas Hill took legal action against his salesman in a dispute over 58 alabaster heads of John the Baptist. Such wrangling over matters of ownership and economics have an almost modern ring to them, so much so that it is easy to forget that the Hill case occurred well over 500 years ago.

The ROM is one of the few museums in Canada with a quantity of medieval European sculpture, including several of these English alabaster carvings, which are rare today.

A form of gypsum, English alabaster is softer and more easily worked than the translucent calcite used in ancient Egypt, and usually softer than the calcite found in Italy and Belgium. The earliest alabaster work in England has been traced to Tutbury, in Staffordshire.

In the ROM relief panel of the Coronation of the Virgin Mary with the Trinity (at left), Mary, in keeping with Christian teaching, is intended to be more than the mother of Jesus. Tradition saw her as the personification of the Church. In the theology of the Eastern Churches, Mary was known as "Theotokos," literally "God bearer." To the Eastern Churches, now called Orthodox, Mary's theological, philosophical role always assumed greater importance than the virginity, which came to dominate the theological thinking of the West.

BRIAN BOYLE, ROM

CORONATION OF THE VIRGIN BY THE HOLY TRINITY, alabaster, English, 15th century. Height 38.7 cm (15 inches), Length 24.1 cm (9 1/4 inches). Accession Number: 933.21

Eventually, other quarry sites and workshops opened at Chellaston Hill near Derby, Burton-on-Trent, Coventry, York, and, best known of all, Nottingham.

The scale of production at Nottingham, documented from 1367 to 1529, was prodigious: an alabaster retable (decorated panels above the back of an altar) made there for St. George's Chapel at Windsor Castle, ordered as early as 1367 and completed in 1372, required no fewer than 10 carts, each drawn by an eight-horse team, to transport it to Windsor. Alabaster carvings were also sent to parts of England and Europe by ship.

Starting in the early 1300s, English artisans began producing a long succession of alabaster tomb effigies. Royal patronage was key for such commissions, most notably for the tomb of Edward II (d. 1327) at Gloucester, and the effigy of John of Eltham (d. 1334) in London's Westminster Abbey. Often the effigies were positioned on rectangular tomb chests with figures along the sides in gothic niches.

At centres such as Nottingham, reliefs were made in such quantity that the manufacturers increasingly standardized the form and subject of their works and took shortcuts to increase output. Eyes, for example, could be carved as half spheres—they look like ping-pong balls—with details of lids and lashes added later by painters.

Wall tombs—vertical bust-length figures within a crenellated Gothic canopied niche—were a departure from the increasingly standardized recumbent effigies of the 1300s. Recumbent knights, ladies, and bishops were by far the most frequent type, found in cathedrals, and in abbey and parish churches throughout the length and breadth of England.

For altarpieces, carved panels of alabaster were mounted in wooden frames sometimes having hinged panels with painted scenes. The most common subjects were scenes from the Passion of Christ and the Life of the Virgin Mary, along with scenes from the lives of the saints.

Starting in the 1530s and 1540s, the extreme iconoclasm of the Reformation in England brought an abrupt end to the use of carved alabaster for religious imagery. When Henry VIII dissolved the monasteries in 1536, he opened the gates to the mass despoiling of church property. Initial destruction by agents of Henry's government was followed by outbreaks of Protestant iconoclasm. Beginning in 1547 with the first major attacks on religious imagery, the destruction of religious art intensified after 1547, with further vandalism during the English Civil War and the Commonwealth period of the 1600s. Of the enormous output of religious alabaster sculpture in England during the 1300s and 1400s, a mere fraction survives today.

Francis Cheetham, one of the best known and most highly respected modern authorities on the subject of medieval English alabaster sculpture, has written that of the large number of alabaster works that once existed, there are only some 50 complete altarpieces and about 2000 individual panels and independent figures left.

Among the survivors are three relief panels with religious themes and two independent figures of St. Catherine (see "Two Catherines," page 21) in the ROM's collection. All of the ROM examples retain some of their polychrome paint and gilding and all show some degree of surface damage. The images on these pages showcase the ROM's fine and rare examples of alabaster sculpture.

Crucifixion

Alabaster carvers in England produced several variants on the subject of the Crucifixion, the simplest showing Christ on the cross with St. Mary the Virgin at the bottom left and St. John the Evangelist at the bottom right, often with winged angels gathering the Blood of Christ in chalices. In the most complex scheme, the two thieves Dismas and Gesmas (or Gestas) are shown on either side of the crucified Christ, with St. Mary the Virgin swooning at the lower left corner amidst a crowd of soldiers and angels, supported by Mary Magdalene and Mary Salomé.

The ROM's panel (at left) omits the two thieves, but includes most of the other details, including the soldier Longinus who pierces Christ's side with a lance. A Roman centurion, representing the one cited in Matthew 27:54, points to a scroll, which probably was intended to bear the words "*Vere filius dei erat iste*" (Truly this was the son of God), which were attributed to him.

The armour worn by the centurion and two soldiers above him includes helmets that are likely stylized representations of 15th-century export "western" sallets with pointed crowns, found in English sculpture from the 1460s to c. 1490. The waist belts, or baldrics, on the centurion and another soldier are a type worn over armour in the late 1300s, but continued to appear in effigies long into the 1400s. The wasp-waisted silhouette of the centurion's armour was a style of the late 1300s to early 1400s, but it, too,

This alabaster panel of the Crucifixion (left), acquired in 1930, is typical of many 15th-century Nottingham reliefs in its standardization and lack of eyelids on the figures.

was retained in reliefs into the late 1400s.

While alabasters are difficult to date, the details of the armour in this sculpture and the stylized facial types—with long noses, ping-pong-ball eyes, and down-turned mouths—correspond with panels loosely dated to the second half of the 15th century, closest to those thought to date from the last quarter of the century.

Entombment

In the ROM's relief of the entombment (at left), Christ's tomb is shown as an essentially medieval rectangular sarcophagus. Above and behind, St. Mary the Virgin clasps her hands in prayer. At the upper right another figure carries a palm frond and book. The figure at the upper left, a bearded male with a conical hat, represents Nicodemus, mentioned in John's Gospel. At the foot of the tomb, a larger bearded figure wraps Christ's body in a burial cloth. His position in the painting identifies him as Joseph of Arimathaea, mentioned in all four Gospel accounts—Matthew, Mark, Luke, and John—as securing Christ's body for burial, having it wrapped in linen, and laid in a sepulchre. The seated praying woman in front of the tomb with a lidded jar near her feet is clearly intended to represent St. Mary Magdalene, who, according to the Gospels, was present at the Entombment.

The relief is one of countless religious art works of the 1400s, which communicated a common visual language of international form and symbol—the purse of Joseph of Arimathaea in the ROM's panel, for example, has parallels in a detail of the Haldern-er Altar at Münster, in Konrat Meit's 1496 wood sculpture in the Nationalmuseum at Munich, and in a widely circulated graphic design by the anonymous Master of the Power of Women. Likewise, the stylized headwear of Nicodemus and Joseph of Arimathaea are part of a common tradition used north of the Alps to suggest peoples and places removed in time and distance from contemporary life.

In the 1400s, numerous minor variations occurred in English alabasters of the Entombment: headwear is reversed on Joseph of Arimathaea and Nicodemus, Mary Magdalene is holding the right hand of the dead Christ, or the entire composition is reversed. The number of figures, however, remains fairly constant. The degree of standardization of the figures, the shortcuts in carving, and other features suggest a date for the ROM Entombment in the second half of the 15th century, perhaps in the fourth quarter.

Coronation of the Virgin

The themes of the Assumption and Coronation of the Virgin, which grew out of apocryphal legend, enjoyed considerable prominence in art of the Middle Ages. But the Virgin's being crowned by the Trinity was a new subject, not developing until the late 1300s and into the 1400s. In the ROM's 15th-century alabaster (on page 14), Mary is seated with God the Son at the left and God the Father at the right. The Holy Ghost is in the form of a dove, holding a triple crown in its beak.

This Trinity is a specifically Western type and occurs in Eastern Byzantine iconography only as the result of Western influence. Traditionally, Eastern convention refrained from direct depictions of God the Father, substituting a hand with pointing finger, rather like a modern computer cursor, emerging from clouds. For the Trinity, Eastern convention favoured three angelic figures from the Book of Genesis, based on the story of the Hospitality of Abraham.

Some English alabasters of the late 1300s show St. Mary the Virgin kneeling next to the seated Christ, who is placing a crown on her head. This two-figure type was followed during the 1400s by various depictions of the Virgin crowned by the Holy Trinity. In some versions, God the Father and God the Son wear triple crowns, but the ROM's version is the most common.

In the ROM's relief, the two fingers next to the thumb of Christ's right hand are placed together as a symbol of Christ, as true God and true Man. The thumb and remaining two fingers placed together symbolize the Trinity. The pose of St. Mary the Virgin with hands open and spread is known as an "orans," which occurs in the earliest Christian art.

The forms of dress in this carving relate to models of the early to mid-1400s, as do the hair and beards on the figures of God the Father and God the Son. With the standardization of subject matter, such features tended to become frozen into conventional forms, often repeated over extended time periods. Perhaps the drapery style gives us a better clue of this sculpture's date; it is close to that of reliefs considered to date from the second half of the 15th century. ■

This 15th-century English alabaster relief (left), also acquired by the ROM in 1930 and probably of Nottingham origin, depicts the Entombment of Christ. Its iconography is similar not just to other English alabasters but to a wide range of Western European paintings and sculptures, as well as graphic and other art works of the 1400s.

ST. CATHERINE, alabaster, English, 15th century. Height 36.8 cm (14 inches). Accession Number: 910.88.3

ST. CATHERINE, alabaster. English (?), early 16th century(?). Height 89 cm (35 inches). Accession Number: 969.186

Two St. Catherines

Along with saints Barbara and Margaret, Catherine of Alexandria, patroness of philosophers, saddlers, students, and ropemakers among others, was one of the most popular of all female saints during the Middle Ages. Martyred in 310 AD according to traditional legend—with her feast day falling on November 25—she was depicted in every manner of art: manuscript illuminations, paintings, sculptures, and stained glass.

Her story, recounted with vividness in *The Golden Legend of Jacobus de Voragine* (c. 1230–1298), presents her as an intelligent and courageous woman for all seasons and all ages. According to legend, she was a royal princess, the daughter of King Costus. At the age of 18, she challenged the Roman emperor Maxentius, who was persecuting Christians of Alexandria who refused to offer sacrifice to pagan gods. Catherine was compelled by the emperor to defend her Christian faith against 50 pagan philosophers, noted for their intellectual brilliance.

Catherine bested them all in debate, and all converted to her faith. Enraged, the emperor ordered the execution of the 50 masters of logic, and had Catherine imprisoned. His attempt to have her executed on four spiked wheels failed through the miraculous intervention of an angel, but she was eventually beheaded. Milk, not blood, was said to flow from her body when she was beheaded, and angels carried her to Mount Sinai for burial.

Besides the three carved English alabaster figures, the ROM possesses two independent relief figures of St. Catherine of Alexandria, both of which show her crowned, with a wheel in one hand and a sword in the other.

The first of the ROM's figures of St. Catherine, acquired in 1910, is a typical work of the 15th century. The sword in Catherine's right hand is an accurate depiction of a type used in the 1400s—it corresponds in form to Type XV and Type XVIII in the typology of the medieval sword worked out by the late R. Ewart Oakeshott.

The facial type, with puffy cheeks and narrow slit-mouth, is similar to other standardized St. Catherine types among the alabasters in the Victoria and Albert Museum. Her crown appears to be of the same type as that of a St. Barbara in the V&A.

The dress details include two oddities: an open-sided surcoat, where the openings are rendered as shallow cusps, and a broad tippet with a cusped lower edge and rounded neckline. The utterly incorrect rendering of the surcoat on the ROM's St. Catherine also occurs on a Virgin Mary in a 15th-century English alabaster relief of the Annunciation in the Hildburgh Collection in the V&A.

The tippet is a feature seen in sculptural depictions of kings, as in Henry VII's Chapel at Westminster Abbey and in the choir screens in the cathedrals at Canterbury and York, and so should not appear in combination with the kind of open-sided surcoat shown below it.

On the ROM's second St. Catherine, the unusually small wheel, with a strut between it and the main part of the figure, is a third oddity. The ROM's second St. Catherine appears to be genuine and English, but of late date. The doughy features of the face are suggestive of the last phase of alabaster carving in the early 1500s prior to the dissolution of the monasteries and the beginnings of the Reformation in England. The stiffness of the drapery folds down the front and sides of the figure, too, suggest a date in the early 16th century.

The first of the ROM's figures of St. Catherine (far left), acquired in 1910, is a typical work of the 15th century. The sword in Catherine's right hand is an accurate depiction of a type used in the 1400s. But the dress details include two oddities: an open-sided surcoat, where the openings are rendered as shallow cusps, and a broad tippet with a cusped lower edge and rounded neckline. ¶ The Museum's second St. Catherine relief, acquired in 1969, has not yet been dated and attributed satisfactorily. Compared with many surviving English alabaster figures, it is unusually large, 89 cm (35 inches) high compared to the 36.8-cm (14-inch) height of the ROM's other St. Catherine.

Treasures of the Bloods

Swept up in curiosity about the North American Native peoples, a pinched-looking middle-aged Englishwoman set out for adventure in Alberta in 1890, collecting important artifacts we still treasure today.

by Arni Brownstone

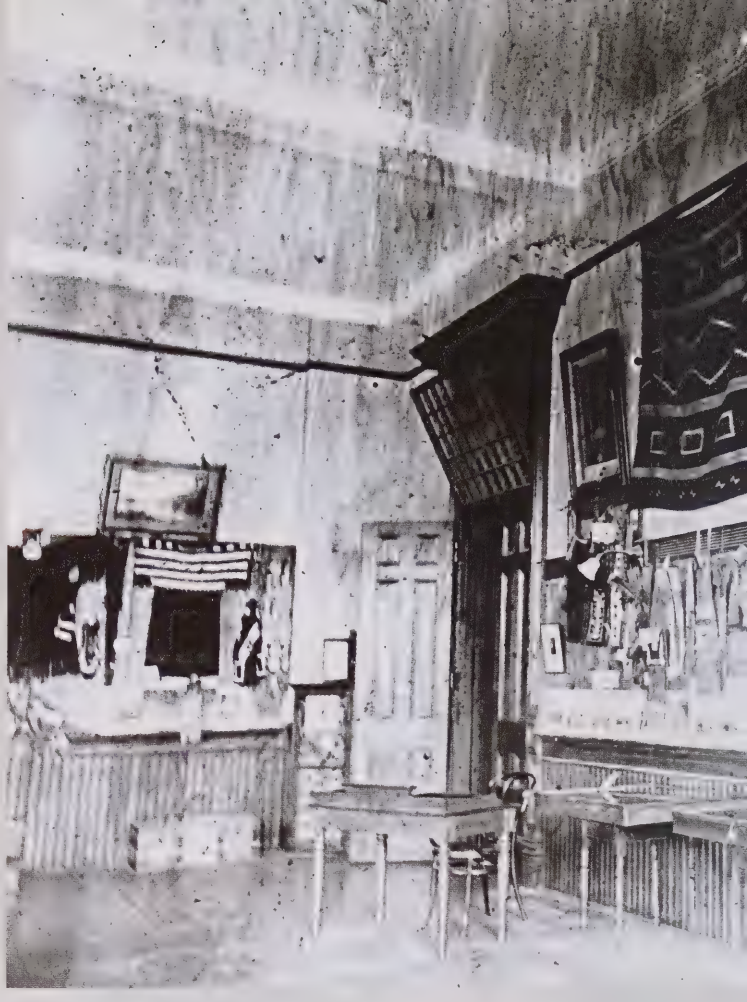
Carefully avoiding "stuffy" Pullman in favour of immigrant class, the two prim Englishwomen were searching for adventure as their train rattled across the Canadian prairies in the summer of 1890. Frances Baynes Kirby, the 42-year-old widow of an Anglican clergyman, conceived of the trip after seeing a Buffalo Bill show in the "old country," a show that left her feeling "tremendously curious about Western Indians." She persuaded 22-year-old Violet Winifred Wood, the daughter of another English clergyman, to accompany her. When they

Bucks Saddle. Blood. — Chief White Calf.
Made of buckskin padded with hair & beaded at each end.
Col. by Mrs. Brant Sero. — Blood Reserve Can.

War Club. Blood. — Chief White Calf.
Has stone head & beaded handle.
Col. by Mrs Brant Sero — Blood Reserve Can.

Knife and Case. Blood. — Chief White Calf
Case of buckskin beaded
Col. by Mrs Brant Sero — Blood Reserve Can.

Toilet Bags. Blood.
Beaded buckskin. Used to keep face paint etc in.
Col. by Mrs Brant Sero. — Blood Reserve Can



COURTESY OF THEODORE NEWBOLD

Above: Detail (altered) of Tefft Collection catalogue attributed to Jesse J. Cornplanter, Mohawk illustrator, 1904. **Middle:** Installation photograph of the Indian section of the Canadian Historical Exhibition, 1899. White Calf's saddle is near the centre, his knife sheath toward the left corner. **Right:** Lizzie Davis wearing regalia collected by Frances Kirby from the Bloods.

pulled into Gleichen, a town on the Blackfoot (Siksika) Reserve in Alberta, they had reached their destination.

As the travellers stepped onto the station's wooden platform, there would have been Blackfoot women hawking polished buffalo horns and beadwork, dressed conservatively in full-length skirts, sombre tartan shawls, and kerchiefs—the English ladies' first encounter with Western Indians.

From the moment she entered Blackfoot country, Frances Kirby's interest in Native culture only deepened. That interest inspired her to make a significant collection of artifacts from the Bloods (Kainai), a division of the Blackfoot tribe, including three pieces—a "war saddle," a club, and a sheathed "scalping knife"—that had once belonged to White Calf, the last Blood war chief.

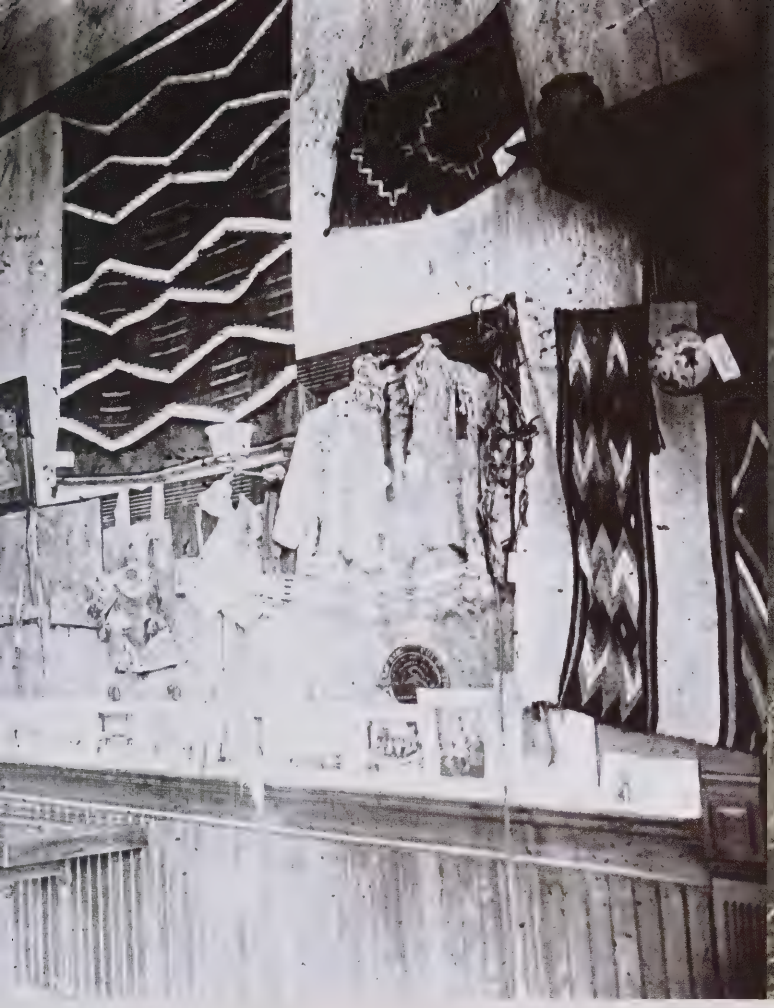
The following account retraces the part these objects played in White Calf's life and their circuitous journey from Frances's hands to their eventual residence in the Division of Anthropology, American Museum of Natural History in New York City.

In 1877, when they signed Treaty Seven, the Blood Indians surrendered most of their land to the Dominion of Canada and began their difficult adjustment from a nomadic life to one on the reserve. All this coincided with the demise of the buffalo, and Blackfoot life changed dramatically. The nomadic days were still alive to many Blackfoot, and nowhere were those days more deeply etched than in the mind of White Calf.

Head of the Marrows band, White Calf was among the treaty's signatories, along with co-head chief Red Crow. By 1883, when the older Blood leaders had passed on, the Bloods considered White Calf and Red Crow as two of the most influential men on the reserve.

Even after signing the treaty, there were several incidents that led the Bloods to a state of war alert and, according to ancient custom, Red Crow would have to step aside for White Calf, who was the war chief. Most notably, in 1882 White Calf led a war party of 90 to 200 warriors, the number varying from one report to another, to avenge the theft of their horses by the Crees. The Bloods killed and scalped one enemy with no losses of their own, a victory that added considerably to White Calf's popularity.

Later that same year, co-head chief Running Rabbit took permanent residence in Montana and his position opened up. White Calf, a tall muscular man and a very persuasive speaker with strong leadership qualities, may have seemed a natural for the post. But Red Crow was aggressively protec-



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1898 ANNUAL ARCHAEOLOGICAL REPORT OF ONTARIO, PLATE IX

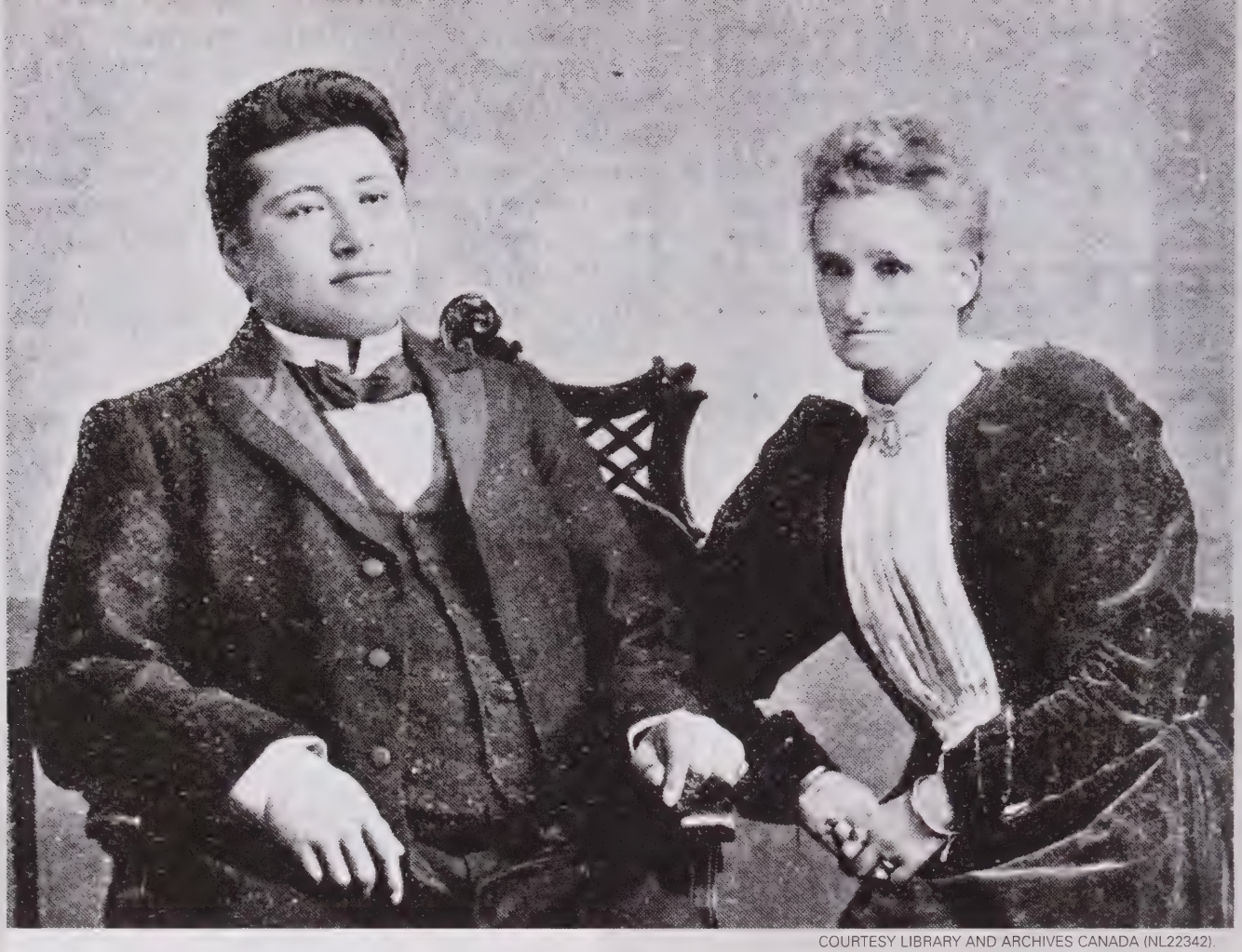
tive of his position and felt that sharing the headship with White Calf would undermine his power and perhaps upset relations with the Indian Agent.

The Methodist missionary John MacLean described White Calf as "hating the language, customs and religion of the white man. As he sees the gradual decrease of his people, and their dependence upon the Government for support after the departure of the buffalo, and the encroachments and haughty spirit of the white men, and seeing them transformed into a band of peaceful farmers, he mourns the loss of the martial days." Indian Agent William B. Pocklington noted that "being very much gifted as a talker, [White Calf] would use his influence to put bad thoughts into the heads of the young men on the Reserve," perhaps influencing them to raid horses rather than grow vegetables. White Calf persistently led the Bloods in their grievances over inadequate food rations, for which Pocklington nicknamed him "Prince of grumblers." Ultimately it was both Red Crow and the Indian agents who prevented White Calf from succeeding in his aspiration to become a head chief.

The next decade saw many changes in Blood culture, changes that seem to have passed White Calf by, leaving him diminished in the eyes of his people. By 1891, Agent Pocklington noted that "Old Talking Machine . . . lost a good deal of his influence" among the Bloods. Then, on September 11, 1897, Agent Wilson unceremoniously noted in the August report to his superior that "Old Minor Chief White Calf who has been sick for a few months suffering from some internal complaint died during the month." So died the last of the Blood war chiefs, relegated to the back pages of history, leaving no photographic likenesses and little record of his life in the buffalo days.

What did remain, however, were the three artifacts that had belonged to White Calf, collected by Frances Kirby during her journeys to Blackfoot country in Alberta.

Soon after arriving in Gleichen in 1890, Frances's travelling companion, Violet, met Reverend J. J. Tims, the Anglican missionary to the Blackfoot. Ten days later they were engaged. Frances gave the bride away on October 30, 1890, and went back to England. Two years later, she returned to Gleichen, on June 7. In the interim, she must have had a falling out with Violet. For the duration of the visit, Violet lived in the Mission House on the Blood Reserve, while Frances stayed 130 miles to the north, lodging at the homes of people connected to the Blackfoot Reserve—the Farm Instructor, the Indian Agent, and several missionaries—all of whom appear in Violet's official wedding photograph. While at the mission with her infant, Violet wrote almost daily to her husband while he renovated their home on the reserve in Gleichen. She kept her husband up-to-date on Frances, hardly losing an opportunity to take a jab at her former friend. "What a bother Mrs. Kirby is. I was hoping that she was safely out of the country by this time . . . that woman is a perfect nuisance."



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Above: Frances and John Ojijatekha Brant-Sero. Toronto *Globe* October 16, 1897.

Frances returned to England around August 15, perhaps with some of her collection of Indian artifacts already in hand. Some years after being back in England, Frances met John Ojijatekha (the Burning Flower) Brant-Sero, a Mohawk Indian from the Six Nations of the Grand River Reserve in Ontario. By then, Frances was 48, some 19 years older than Ojijatekha. Photographs show her to have a tight, pinched appearance, while his open, generous features once earned him third place in an international "beauty show for gentlemen" as they were then called, in England.

On June 29, 1896, the unlikely pair were married. That same year they moved to Canada, taking up residence at Pinder Lodge, a large property on the outskirts of Hamilton. According to the *Dictionary of Canadian Biography* they quickly "cut a wide swath in society." Their social tour de force was a huge party they threw in celebration of Queen Victoria's diamond jubilee in 1897, attended by 600 members of the Iroquois Nation, including the chiefs.

During the two years after this event, the couple remained in the public eye. Ojijatekha combined his acting skills, honed on the dramatic stage in England, with his scholarly knowledge to mount theatrical presentations about Iroquoian culture for local audiences. He lectured in both Mohawk and English. Frances sometimes played piano while Lizzie Davis, the daughter of a Mohawk chief, sang, dressed in the costume of a Plains Indian woman. For several months, Ojijatekha assisted David Boyle, founding director of the Provincial Museum of Ontario, in his important field study of Iroquoian culture, published in the 1898 *Annual Archaeological Report of Ontario*. Boyle became his great mentor with whom, in Ojijatekha's words, he had formed "a genial bond of tenderness."

In 1899 Ojijatekha was elected second secretary of the Ontario Historical Society, an appointment that drew some criticism from the Six Nations community. These activities brought little money to the Brant-Seros and combined with Ojijatekha's high living style, Frances's savings were soon depleted and the couple were plagued by money problems.

In January 1898 they wrote to David Boyle, offering to sell their collection of Blackfoot artifacts. The list of some 60 artifacts collected by Frances was titled: "OJIJATEKHA Collection of RELICS mostly Illustrative of the Blackfoot and Blood Indians in the Canadian North West. Work in Beads and Skin." At the end of the list is a note: "The above collection was gathered by Mrs. Brant-Sero from the Indians themselves during two visits to the Northwest, afterwards taking them to England. The collection is valued at £500. Pinder Lodge, Hamilton, Ont., Jan. 6/98."

Boyle turned down the offer, noting that, "the collection is certainly a very good one . . . but I am fully assured that a

COURTESY OF THE GLENBOW ARCHIVES (NA-1645-1)

Above: The official photograph of the wedding of Reverend J. W. Tims and Violet Wood, taken on October 30, 1890, St. Andrew's Church, Gleichen. L-R back row: P. E. Stocken; Teacher Sanderson; Canon W. R. Haynes; Reverend Doctor A. W. F. Cooper; Reverend Stanley Stocken; Miss Lizzie Perkes; Reverend Frank Swainson; Mrs. M. Begg; Magnus Begg; William F. Baker, farm instructor. L-R front row: Mrs. Swainson; Reverend and Mrs. J. W. Tims; Mrs. Kirby; Mrs. W. M. Baker and her two children.

similar, or even superior one may be made for less than half the price asked."

In February 1900, Ojijatekha wrote to Boyle of his plan to go to Chicago to make a decent living, and asked him to explain to Frances that it was a question of business, not a matter of running away. "It is my intention to leave Canada for the States in search of a market for my brains and talent," he wrote. In the same month, Frances also wrote Boyle, expressing her concern over her husband's departure, noting that he was "as queer as Dick's hatband that went round nine times and would not tie." Whatever his wife's opinion, Ojijatekha became something of a celebrity during his four-month stay in Chicago. Although he worked as a "special" reporter with the *Evening Post* and received offers to give a lecture series at the Field Museum, Ojijatekha was still unable to make ends meet.

At the Field Museum of Chicago, Stephen C. Simms, assistant curator of Ethnology and later the museum's director, suggested that Franz Boas, curator of Anthropology at the American Museum of Natural History, might be interested in hiring Ojijatekha as a fieldworker among the Iroquois. Although Ojijatekha sent Boas a lengthy proposal probably in 1900, he noted that certain doors might be closed to him: "My experience and sympathies with my own people make my fitness for field work of some value, however, there does not appear to be any demands for educated Indians in the higher walks."

Although Boas seemed genuinely interested in Ojijatekha's offer, he could see no immediate opportunity for the American Museum of Natural History to embark on a field study of the Iroquois. Since there is nothing to connect him directly with the sale of Frances's collection to that institution in 1910, it seems likely that what Ojijatekha did do was put Simms in touch with Frances. On February 6, 1900, she wrote to Boyle that Simms and a Chicago dealer, T. R. Roddy, were interested in acquiring the collection. Just six weeks later, the secretary of the Wentworth Historical Society noted that Frances was "compelled to sell her collection of Indian curios & said to be very valuable to get money to take her to England." The Field Museum had turned down the offer of the collection, likely because they already held two significant collections from the Bloods. So most probably Frances sold her collection to Roddy.

Sometime between 1900 and 1904, Roddy appears to

CAT. NO. 50.1/1230, AMERICAN MUSEUM OF NATURAL HISTORY

have then sold Frances's material to a major American collector, Erastus Tefft, since in 1904 Tefft produced an elegant handmade catalogue of his collection, which included artifacts first acquired by Frances. White Calf's artifacts were illustrated with annotations.

Then, in 1910, Tefft sold his collection to New York's American Museum of Natural History. Among the 1300 Indian objects were some 30 Blood and Blackfoot artifacts, which, according to the documentation, were originally collected by "Mrs. Brant-Sero." Outside of the AMNH collection, only a single additional object from Frances's original 60-piece collection has been located: a pair of women's beaded leggings, deposited by Tefft in the National Museum of the American Indian, Smithsonian Institution. Some 30 items on Boyle's original list have yet to be located. A number of the missing artifacts are among those discernible in the several installation photographs of the Canadian Historical Exhibition, Indian section, held in 1899 at Victoria University in Toronto.

An article on the Brant-Seros's 1897 jubilee celebration that ran in the Toronto *Globe* showing two photographs of Ojijatekha clad in Indian regalia suggests another possibility. In his hand Ojijatekha holds a woman's awl case "trimmed with scalp locks," which is now in the American Museum of Natural History. But the moccasins, looped necklace, belt, and leggings he is wearing, all of northern Plains Indian manufacture, have not been located. Perhaps Ojijatekha kept these and other items as props for the numerous public lectures and performances he continued to offer in Europe and North America until his death in 1914.

Similarly, the photograph of Lizzie Davis in the *Ontario Archaeological Report* shows her wearing a dress, leggings, and moccasins, with a knife sheath and pipe bag held in the belt, and bow and arrows in hand, all from Frances's collection. Some of Lizzie's regalia can be seen in the 1899 exhibition photographs and are preserved today in the American Museum of Natural History.

As for when Frances originally made her collection, there are only two pieces of direct evidence. One is a single entry in the Canadian Historical Exhibition catalogue: "pair of earrings bought direct, and taken from the ears of a beautiful Indian woman, 1890." The other is on Tefft's list, "Coll. by Mrs. Brant-Sero, 1895, Blood Reserve." While existing documentation indicates that Frances did make three trips to Blackfoot country, information corroborating a visit to the Blood Reserve has yet to surface.

The three White Calf artifacts that Frances collected are today of particular interest; we know something about White Calf and his times—the early days of transition to reserve life, which Frances and Violet would have witnessed. One of the White Calf artifacts from Frances's collection was a "pad saddle," probably the older of two major types of Plains Indian saddle, used only by men. Its form—a soft hide envelope,

CLUB: CAT. NO. 50.1/1231, AMERICAN MUSEUM OF NATURAL HISTORY.
KNIFE AND SHEATH: CAT. NO. 50.1/1228 A AND B, AMERICAN MUSEUM OF NATURAL HISTORY.

Left to right: The pad saddle attributed to White Calf, decorated with floral and geometric beadwork. White Calf's club with beaded decoration and fringed hide handle. White Calf's knife and sheath. The zigzag motif may represent lightning, held in awe for the speed and power with which it strikes.

partitioned lengthwise along the centre, with both compartments stuffed with the resilient hollow hairs of moose or deer—was likely adopted from the word *Cojinillos*, literally "little Pillows" or saddle pads, which the Spanish were trading to the Indians of New Mexico by at least 1703. White Calf's saddle was decorated with beadwork.

On Tefft's list it is described as a "war saddle." In Blackfoot warfare there were two types of raiding parties: "scalp raids," which focused on killing and taking scalps, and "horse raids." Capture was the primary method of obtaining horses, and the incessant raiding of neighbouring tribes was at the core of the intense warfare that characterized the region during much of the 18th and 19th centuries.

Horse-raiding parties traditionally travelled to the enemy on foot. The Bloods' closest enemies, the Crows, were a 16- to 28-day walk away. Returning with captured horses meant riding bareback, without breechcloths to prevent blistering, for two or three arduous days and nights, almost without rest.

Beginning around 1870, White authorities clamped down on inter-tribal horse raiding and, to avoid the law, raiding parties began setting forth on horseback. This practice became progressively more common toward the close of inter-tribal horse raiding in 1885/1886. As horse raiders equipped themselves with only the bare essentials, however, it is unlikely that they used decorated saddles like White Calf's.

Scalp raids, on the other hand, though infrequent, often involved hundreds of warriors riding to the enemy on horseback, accompanied by considerable pageantry. "Each man rigs himself [and his horse] up in his grandest attire," noted Robert N. Wilson, who ran a trading post in the town of Stand off on the Blood Reserve for more than 50 years and also served as an Indian Agent from 1898 to 1911. In 1891, Red Crow, the co-head chief of the Bloods, told Wilson of a huge Blackfoot party on the warpath. White Calf, leading a group of scouts, returned with a report on the location of Cree enemies. Said Red Crow: "The news spread rapidly through the camp, and soon in all directions were to be seen men catching and saddling their war horses. A great war dance was indulged in by the mounted men, until all were ready. Then off they started, hundreds and hundreds in number—a fine sight."

While the passage confirms that horses were saddled for the dance and the journey to the enemy camp, it doesn't mention whether saddles were used in battle. Typically, a Blackfoot war party would organize a ferocious initial assault on

horseback to shock the enemy into disarray. As they attacked, they constantly wove their bodies from side to side, or bent low over the horse's neck to make a difficult target. Apparently, riding bareback allowed them to perform these manoeuvres with greater dexterity, and a number of accounts describe Plains Indians discarding their saddles before the charge. A variety of ceremonies called for both horse and rider to dress in full war regalia: sham battles, mounted parades, the Riding Big Dance performed immediately before striking out on a scalp raid, or during the annual Sun Dance.

White Calf's club is another fascinating piece in the Brant-Sero collection. Performing brave deeds was a primary means for Blackfoot men to gain social esteem, and greater bravery was associated with hand-to-hand combat than with the use of weapons that could kill efficiently from a distance. In the late 19th century, Blackfoot warriors used elliptical or bi-conical stone-headed clubs with long shafts, often called "coup sticks" because they could be used to strike a powerful blow. A longer shaft, it seems, was used for fighting on horseback. In a running battle, a warrior used his club to knock the enemy from his mount. Although many Blackfoot war exploits have been recorded in both words and pictographs, references to clubs are few and far between.

One of the few accounts was given by Shorty White Grass, an important Blackfoot (Piegan) warrior and ceremonialist who died on his reserve in Montana in 1908 at the age of 80. He recalled that an enemy Chief, seeing that death was inevitable and fearing death by a gun, entreated Big Nose, a Blackfoot, to kill him with a club instead. Despite the paucity of written accounts, museums contain many serviceable stone-headed clubs from the northern plains. Most have little decoration, while others, like the one attributed to White Calf, are ornate.

Clubs were likely used as weapons only on scalp raids and in pageants associated with war. It may be that towards the close of tribal warfare, clubs came to be regarded more and more as insignia of rank, to be carried on ceremonial occasions, particularly in dances. Today, traditional powwow dancers often carry a decorative club, which they raise when the drum gives an accented beat or "shot."

The third White Calf artifact is described in the Canadian Historical Exhibition catalogue as a "double edged scalping knife." The Blackfoot called this type of knife a "stabber" or "beaver tail knife." It was favoured in hand-to-hand fighting. In the 1940s elderly Blackfoot Indians explained to anthropologist John Ewers that the knife was used as a shock weapon. The warrior grasped the handle with the blade protruding from the heel of his fist and used either a powerful downward chopping motion to penetrate his opponent above the clavicle, or a sidewise slash into the stomach or between the ribs. The elders described how they used such knives in their youth to scalp the enemy by grasping his hair with the left hand, using the right hand to cut around his crown, and jerking off the hair with the skin attached, removing a section of scalp about 7.6 cm (3 inches) in diameter.

On horse raids, knives were indispensable. The most prized horses were war horses, or buffalo runners, which were kept securely tethered outside the tipi near the sleeping owner's bed. The raider would cut the halter at just the right length to quietly lead the horse away.

White Calf's sheath, with its characteristic lozenge-shaped tab, is a uniquely Blackfoot design. Typically, the sheath has two beaded sections separated by a length of hide, often decorated only with zigzag lines. Based on comparison with other items having similar beadwork styles, it is unlikely that White Calf's saddle, club, and sheath were made before 1875—five years after the last major scalp raid mounted by the Bloods.

Of all the documentation of the saddle and club, only on Tefft's list is the term "war" used to describe them. What we know about war practices at the time, moreover, suggests that any association of these artifacts with war was largely ceremonial. Long after the fighting days, war ceremonials continued, and it is entirely possible that Frances observed White Calf in a mounted parade or sham battle decked out with his club, saddle, and knife.

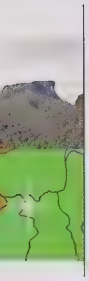
As Frances's collection changed hands, White Calf's name became increasingly prominent on the collection lists. His name is absent from the original list provided to Ojijatekha's mentor Boyle when he and Frances first attempted to sell the collection. Then, in the Historical Exhibition catalogue there is a single entry, "Blood Indian Pony Saddle (Blood Reserve). Belonged to Chief White Calf." By the time the items got to the AMNH, the accession list has the notation "obtained from White Calf . . . Blood Reserve" recorded for all three items.

No doubt many Indian artifacts have been falsely associated with famous chiefs in order to increase their monetary value or for vanity's sake. Although White Calf was undeniably important among his people, he did not achieve the kind of widespread notoriety that would have made his name particularly marketable. While we cannot be absolutely certain that the three artifacts did belong to White Calf, their existing documentation is cause to acknowledge this important, if overlooked, Blood tribal leader.

Of course, the collectors of White Calf's possessions were, themselves, intriguing characters. Until the end Ojijatekha remained a controversial, larger-than-life figure. He travelled extensively throughout Europe performing in wild west shows, not unlike the one that first inspired Frances to cross the Canadian Prairies. On March 18, 1914, Ojijatekha sent to Boyle's successor his translation of an important speech given in 1774 by the Mohawk Chief Logan. Two months later, the Provinical Museum received notice of Ojijatekha's death. Condolences were sent to Frances at the same address as Ojijatekha's last correspondence, indicating that the couple may have been together at the end. Whatever their quirks, the couple's interest in Western Indians has helped preserve a piece of history that might otherwise have been lost to antiquity. ■

John Ojijatekha Brant-Sero as he might have appeared in his public lectures. Toronto *Globe,* October 16, 1897.

COURTESY LIBRARY AND ARCHIVES CANADA (NL22343)



A Tale of Two Tepuis

By Ross MacCulloch • Photography by Amy Lathrop

"Everybody bail!" cried Regis James. The silty water of Guyana's Potaro River poured into our battered aluminum boat through dozens of holes where rivets should have been. Piled high with equipment, food, and people, the craft seemed more likely to head for the bottom than to carry us downriver. We grabbed pots, buckets, and cups and bailed furiously to keep the assemblage afloat, while at the stern a venerable outboard motor did its best to push us along.

It was October 2004, and I was travelling with fellow ROM biologists to Mount Wokomung, a *tepui*, or flat-topped sandstone mountain, in western Guyana. The soft sandstone of the Guiana Shield region was once an unbroken plateau covering much of the continent's northeastern corner. Since its formation millions of years ago it has been eroded by high tropical rainfall, so that today only fragments of the plateau remain in the form of isolated tepuis. The irregular terrain and dense forest of the region make access difficult, and the tepuis have acquired mythical status among both indigenous people and curious outsiders. Western

In western Guyana, ROM biologists explore two sandstone mountains that teem with biodiversity.

Guyana and eastern Venezuela are straddled by a series of tepuis called the Pakaraima Mountains, part of the Guiana Shield formation, a region with particularly high biodiversity. These mountains are known for harbouring many species that occur nowhere else in the world.

Amy Lathrop of the ROM's herpetology discipline (Department of Natural History), Brad Hubley of entomology, and I, also of herpetology, were planning to spend three weeks collecting amphibians, reptiles, and insects from the slopes and summit of Wokomung, a tepui from which these animals had never been collected. Biologist Samir Khan of the University of Guyana rounded out the scientific group. We'd hired Regis, an experienced guide and field assistant, to keep us on track, as well as five local *droghers* (porters) who were familiar with the area.

From Guyana's capital, Georgetown, we flew in a 1970s vintage twin-engined Islander aircraft into a remote airstrip in the southern Pakaraima Mountains. From there we planned to travel by boat down the Potaro to a point

PHOTO BY FRANCIS X. FAIGAL

Above: Mount Wokomung. The summit plateau is at the top of the middle peak.

Above left and previous page, left: Vegetation on the summit plateau of Mount Wokomung. **Middle and right:** Map of Guyana showing Mount Ayanganna and Mount Wokomung.

near Mount Wokomung, then hike along an established trail to the summit.

The journey in the 4.8-m (16-foot) aluminum sieve was mercifully short; 15 minutes of enthusiastic bailing brought us to a portage. Below, a wooden boat awaited, which didn't leak quite so badly, although bailing was still a necessary part of the two-hour voyage. Amy, Brad, and drogher Norman Ignatius took turns with a cooking pot, while at the stern Samir and drogher Moses Williams used a cut-down plastic fuel container. With our gear piled high, boatman Colin Alban had to stand to see the river ahead.

Four years earlier, Amy and I, along with former ROM science teacher Carter Cox, had visited Mount Ayanganna, a tepui 37 km (23 miles) north of Wokomung. The two tepuis sit at the eastern edge of the Guiana Shield highlands. Although considerable work has been done on Venezuelan tepuis, the Guyanese mountains are relatively unexplored. The close proximity of Wokomung and Ayanganna offers a unique opportunity to study animal distribution on the two tepuis. Both expeditions were funded by the ROM Governors, and carried out in collaboration with the Smithsonian's Biodiversity of the Guiana Shield Region Program, of which the ROM is a participant.

The program co-ordinates research in the region, and allows researchers from participating institutions to pool resources. Researchers share information about specimens collected and species distributions, producing a centralized data bank on the region's biodiversity. The Smithsonian also helps with logistics and obtaining permits, and rents a house in Georgetown where visiting researchers may stay inexpensively.

With a single fluid movement, Norman swung the 35-kg (77-pound) outboard motor onto his shoulder and headed down the one-km (3/5-mile) portage trail. For his labours we paid him and each of the others $2800 Guyanese dollars ($20) per day, plus food. Villagers usually prefer to work on scientific trips, which offer a guaranteed daily wage, rather than for the small-scale mining operations that dot the rivers, where workers are paid a percentage of the daily take. Few sources of cash are available to the indigenous people of Guyana's interior, who otherwise rely on a subsistence economy.

Two days' travel on the river brought us to the trail to

Above: Mount Ayanganna. Collections were made on a plateau on the left flank of the mountain.

Above left: Map of Guyana showing Mount Ayanganna. **Above right and previous page, right:** Low trees and dense undergrowth cover the upper slopes of Mount Ayanganna.

Wokomung. Moving inland, we established three camps: one at the base of the mountain at a 700-m (2296-foot) elevation, one on the slopes at 1200 m (3936 feet), and one below the summit at 1400 m (4592 feet). The vegetation at the three camps differed, providing a variety of habitats that would allow us to make an extensive survey of the mountain's fauna.

The lack of flat surfaces on the tepui meant we couldn't use tents, so camp consisted of a frame of poles, covered by a plastic tarpaulin, from which we hung hammocks. We cooked over two lightweight stoves and kept our food in 20-l (5 gallon) plastic buckets with tight-fitting lids, which kept our food and sensitive gear dry, despite rain, wet ground, and leaky boats.

As darkness fell, we prepared to begin collecting. Most frogs hide during the day, emerging at night to feed or mate. Our strategy was to walk slowly through the forest with flashlights, searching for frogs sitting on leaves or branches. Meanwhile, Brad set up a bright light illuminating a white sheet strung vertically between trees. He scooped up any night-flying insects that landed on the sheet. Collecting normally went on until midnight or until we were too tired to walk.

We kept the collected animals in inflated plastic bags for inspection the following morning. After breakfast, Brad sorted insects while Amy photographed frogs, lizards, and snakes. Photography is labour-intensive, requiring the full attention of the photographer and one or two "wranglers," who retrieve any frogs attempting to leap to freedom.

Before preservation, researchers use humane methods to kill specimens—putting insects into a jar of cyanide, frogs into a clove oil solution, and using an injected overdose of anaesthetic for reptiles. These methods are widely used, and before each expedition they must be approved by the ROM's Animal Care Committee. We store insects whole in alcohol, and dissect amphibians and reptiles, removing a portion of the liver into a small plastic tube with 95 percent ethanol. This fixes the liver tissue so that later we can extract DNA for analysis. We preserve the remainder of the specimen using formalin.

Not all collected animals were preserved. As the trip progressed, we stopped collecting the more common species, and released any that were mistakenly captured. Our collecting permit, issued by the Guyana Environ-

Above: Loading a boat on the Potaro River en route to Mount Wokomung.

Above left and centre: The irregular terrain on Mount Wokomung meant that hammocks rather than tents were used. **Above right:** The ROM party on Mt. Wokomung. Left to right: Samir Khan, Regis James, Brad Hubley, Amy Lathrop, Ross MacCulloch.

mental Protection Agency, allowed only a limited number of animals to be taken, ensuring that local populations can easily recover from the loss of a few individuals. We were also careful not to disturb habitat that might be crucial for reproduction or other important activities.

In late afternoon we searched for any animals that might be active during the day. Brad patrolled the forest with a net and Amy searched for tadpoles in streams while Samir and I looked for lizards and snakes. At sunset we were ready for another evening of work.

Collections made at Ayanganna in 2000, plus preliminary results from Wokomung in 2004, show that these mountains are indeed hotbeds of biodiversity. During our eight-day stay on Ayanganna, we found 25 species on the slopes, approximately double the number reported from Venezuelan tepuis with apparently similar habitat. What's more, eight of these 25 species were new to science, never having been found anywhere else in the region. Some of the eight were later also found on Wokomung, where 28 species were collected.

Comparing collections from the two tepuis shows considerable overlap. Ayanganna has only three amphibian and three reptile species not found on Wokomung, while on Wokomung we collected four amphibian and four reptile species not found on Ayanganna. Obviously, not collecting a species does not necessarily mean that it isn't there—further analyses are needed and some specimens are still unidentified.

Some of the interesting frogs we collected are unique to the Guiana Shield region. One is the tree-frog genus *Stefania*, in which eggs are not laid in water, but are carried on the female's back, held in place by sticky mucus. *Stefania* has no tadpole stage, and the eggs hatch into small froglets that remain on the mother's back for a few weeks before leaving to fend for themselves. Humid conditions on the tepuis prevent desiccation of the eggs.

Because tepuis are almost always humid at higher elevations, *Stefania* are abundant. There are 18 known species of *Stefania*, most found on mountains in the Guiana Shield region of western Guyana and eastern Venezuela. Typically, a tepui will have only one or two resident species of *Stefania*; however, both Wokomung and Ayanganna support relatively high numbers of these frogs—six and seven species, respectively—making them

Above: Camp on Mount Ayanganna.

PHOTO BY ROSS MACCULLOCH

Above left: Ross MacCulloch and Carter Cox at the beginning of the four-day walk to Mount Ayanganna. **Above right:** Amy Lathrop photographs a frog on Mount Ayanganna while Carter Cox stands by.

home to the highest documented diversity of *Stefania* anywhere. It is not known whether this diversity is due to the varied habitats on Wokomung and Ayanganna, the thoroughness of the collecting, or simply because a large number of *Stefania* species evolved on these two mountains.

Another intriguing group is the toads of the genus *Oreophrynella*. Although small, *Oreophrynella* have long legs and flexible toes that can actually grasp twigs, allowing them to climb into vegetation, unlike most of their squat, short-limbed brethren. Before 2000, *Oreophrynella* were known only from Venezuelan tepuis, but in that year we found a new species on Ayanganna. On Wokomung in 2004 we found two more, one or both of which may be new species.

Once a camp had been set up, the droghers would go on ahead to begin preparing the next one. Before a move, the trail and the new campsite had to be cleared of fallen trees, and the frames supporting the hammocks checked and, in some cases, rebuilt entirely.

The droghers used woven backpacks called *warishis*, made from strips of wood with shoulder straps and a tumpline made of bark strips, to ferry our supplies between camps. With fuel cans, buckets, and other equipment tied into the *warishi*, a typical load was 30 to 35 kg (66 to 77 pounds). Wearing rubber boots, flip-flops, or even going barefoot, the droghers travelled at a rapid pace, which the Canadians, carrying only 10 kg (22 pounds) each, could not match.

With one hand on a hastily strung rope and the other scrabbling for a grip on wet sandstone, I pulled myself up the path to Wokomung's summit. "Just think," I said, "in Venezuela, biologists use helicopters to get to the top of tepuis." "Wimps," commented Brad, grasping a root that protruded conveniently from the muddy near-vertical slope. The previous day, the droghers had cleared the trail through dense forest and around huge sandstone boulders, strung the rope in some very steep sections, and returned to camp in time for lunch. The ROM biologists proved much less agile; reaching the summit took us three hours.

While the slopes of Wokomung are covered in forest, high winds and poor soil on the summit prevent growth of all but a few stunted trees. On the summit's shallow bowl about 1 km (3/5 of a mile) across, the soil is thin and the bedrock very near the surface, so most of it is perennially

Top left: A male tree frog, *Hypsiboas sibleszi*, calling at night on Mount Wokomung. Night photographs are important because some species change colour from night to day. **Bottom left:** *Chironius fuscus*, a non-venomous snake from Mount Wokomung. **Right:** A probable new species of toad, *Oreophrynella*, which can climb onto vegetation, at Mount Wokomung.

wet. Only low woody shrubs and large terrestrial bromeliads can grow there. The result is an almost-impenetrable waist-high tangle, which makes walking difficult. Tepui summits may also have animal inhabitants different from those on the slopes, making it important to sample there.

Elevation can limit a species' distribution, but other factors also affect where a species occurs. Amphibians, for instance, may prefer the windward side of a mountain because the rainfall will be greater than on the leeward side. Some species prefer permanent streams and are found only near running water, regardless of elevation. Soil and vegetation types are also important. Many species occur only at a narrow elevation range, while others appear to be tolerant of a broad range.

As the rain lashed our makeshift camp on the summit—which consisted of a groundsheet and a small tarpaulin—I muttered, "The headlines will read 'Canadians Suffer Hypothermia in the Tropics.'" The shrubs and bromeliads offered little protection from the strong wind and cold rain. Our original plan had been to visit the summit repeatedly, but as the climb turned out to be risky as well as lengthy, we realized we would be able to visit the summit only once, remaining overnight to avoid the dangers of descending in darkness.

At sunset, the sky was cloudless. We began our evening routine of searching for frogs and insects, and were quickly rewarded. Numerous animals use bromeliads, the centres of which retain rainwater, for shelter and breeding; several species of frogs and insects lay eggs in the water. While we found no eggs on the summit, we did find several female *Stefania*, all carrying young frogs, using the bromeliads for shelter from the drying winds and strong sun of the summit plateau. Spiders also take advantage of the moisture and shelter of bromeliads during the day, emerging at night to feed. At the rim of the summit, where the slope forest maintains a foothold, we collected another *Stefania*, one *Oreophrynella*, and another small frog.

After a few hours, the wind increased and we retreated to our shelter as rain clouds swept in. At first light we were up, drinking lukewarm tea, and were soon ready to begin the descent.

During an expedition, we record information about specimens, habitats, and other subjects in special waterproof notebooks, carefully stored in plastic containers.

Above: A probable new species of *Eleutherodactylus,* a small ground-dwelling frog from Mount Ayanganna. **Top right:** *Stefania ayangannae,* a new species discovered on Mount Ayanganna. The female carries her offspring on her back. **Bottom right:** *Myersiohyla kanaima,* a tree frog thought to be rare, but which was abundant on both Ayanganna and Wokomung.

Our field notes were filled with notations such as "small frog, brown with yellow spots," "dung beetles, black," and "snake, long, striped."

Some specimens we can identify easily, while others prove more difficult. Back at the ROM, we compare specimens to those in the collections or to written descriptions in the scientific literature. In many cases this provides clues for identification, but not every species has a published description, and despite our best efforts specimens sometimes remain unidentified. Often, we will send specimens or their photographs to an expert at another museum for identification.

As part of our work at the ROM, several staff members are contributing to a printed checklist of terrestrial vertebrates of the Guiana Shield region, which is being prepared by the Smithsonian program.

Back in Georgetown, waiting for our export permits, we visited the Biodiversity Centre at the University of Guyana, where we helped staff with identifications as well as routine tasks such as moving insect cabinets and washing specimen jars. All collectors must deposit a portion of their specimens at the Centre, where Guyanese researchers and university students use them.

In the Pakaraima region where we were conducting our work, the government of Guyana is interested in establishing national parks or other nature reserves. As a small country with limited funds for environmental programs, Guyana is seeking UNESCO assistance—which requires proof that the proposed areas contain important levels of biodiversity. It's abundantly clear that the amphibians and reptiles of Ayanganna and Wokomung more than qualify the area as a biodiversity hotspot. ■

VIEW THE RESULTS: Some results from the Smithsonian's Biodiversity of the Guiana Shield Region Program can be seen on the Smithsonian's Web site at www.mnh.si.edu/biodiversity/bdg/. See ROM mammalogist Burton Lim in the Pakaraima Mountains at www.rom.on.ca/exhibits/guyana/index.html.

Above: A katydid whose wings resemble leaves, on Mount Wokomung.

Above left: Brad Hubley collects night-flying insects from an illuminated sheet on Mount Wokomung. **Above right:** One of the large tarantulas collected on Mount Wokomung.

ON THE INSECT SIDE

Climbing up Mount Wokomung provided a unique opportunity to sample insects from an area that ROM entomologists had never before visited. Malaise traps, pan traps, dung traps, and Mercury vapour lights are just some of the methods used for collecting in the field. And of course, there is the old tried and true method of simply wandering through the forest looking for anything that moves.

One of the most effective collecting methods is a Malaise trap. As an insect lands on the trap's centre panel, it will fly or crawl upwards until it reaches the trap's roof, which angles upwards to an opening. On the other side, a bottle of ethyl alcohol sits ready to preserve the insect as it falls in. Such traps are set up for at least a week, allowing for collection of daytime and nighttime flying insects.

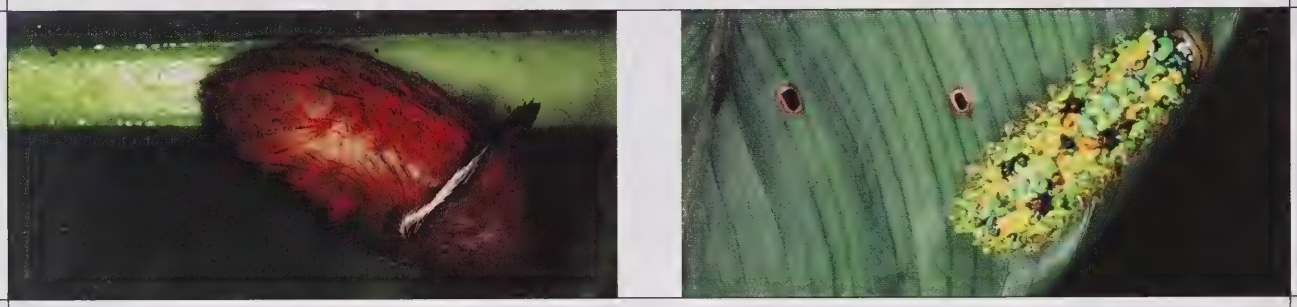
Our Guyanese *droghers* were more than willing to tag along to watch me set up these unusual-looking traps, more than once commenting on how they would make great mosquito nets. In fact, one of the side benefits of collecting in such an isolated area was that I didn't have to worry about someone coming by and nabbing one of my traps to cut up as mosquito netting (which has happened in the past).

Back in the lab, the sorting process begins. With the aid of a microscope, I go through each sample and remove target groups, such as bees and wasps, caddisflies, beetles, or stoneflies, and prepare these specimens for study. Worldwide, the number of insect species is estimated at 30 to 100 million, with just over 1 million known to science, so no one entomologist can possibly know all the species in a sample.

In the field it can be frustrating to hear Amy and Ross identify a snake or lizard right down to the species level. Dialogue can go something like this: Amy, "So what is this?" Me, "It's a dung beetle." Amy, "What kind of dung beetle?" Me, "A scarab dung beetle." Amy, "Can you be more specific than that?" Me, "A tiny, red- and bluish-tinged dung beetle that may or may not be known to science. I won't know specifically what it is until I get it back to the lab, look at it under a microscope, and try to identify it by reviewing the dung beetle literature, and even then it could very well turn out to be an undescribed species."

Speaking of dung beetles, dung traps happen to be

Above: Raising its fore-legs and baring its fangs, this spider assumes a threatening posture to ward off any potential enemies.



Above: Many caterpillars on Mount Wokomung exhibit vivid colours which serve to warn off potential predators.

one of my favourite methods of collecting insects; they tend to produce results overnight. Suspended over a small plastic bowl of soapy water and pickling salt, little nuggets of dung wrapped tightly in a cheesecloth ball prove irresistible to a subfamily of scarab beetles known as the Scarabeinae. I simply set up a dozen or so traps, preferably where there is the possibility of a breeze, mark a tree nearby with flagging tape, inform my colleagues where they are so they don't step into them while collecting snakes and frogs at night, and visit the trap again the next morning to scoop out the night's catch with a small aquarium net. A quick rinse in a nearby stream and I have a nice collection of dung beetles ready to be preserved in ethanol. I revisit the trap later in the evening, scoop, rinse, and preserve, and then come back again the next morning for one last collection (after 24 hours the dung is too dried out to attract the beetles).

One of the best-known groups of insects, dung beetles have been subject to extensive international research. Preliminary results from our trip to Guyana show a decrease in the diversity and numbers of dung beetles the higher one goes up Mount Wokomung. This could be related to the decreased supply of their main food source—mammal dung.

Insects were not the only invertebrates we collected—we also snagged spiders, scorpions, and daddy-long-legs, all of which are arthropods. By far the most spectacular spiders we collected were the large mygalomorphs, commonly known as tarantulas. We didn't find any specimens of what may be considered the largest spider in the world, the Goliath Bird Eating spider, (though the Biodiversity Centre at the University of Guyana has a few specimens), but we did find quite a few tarantulas of substantial size. Some of their leg spans were greater than the width of my hand. We collected a few of the larger tarantulas at our base camp, but none at the summit. At our mid-level camp, we collected the greatest diversity.

Another unusual addition to our collection is the daddy-long-legs spiders (Opiliones) found at our mid-level camp. Specimens ranged in body size from 6 to 10 mm (1/5 to 5/8 inch) in diameter, considerably larger than the ones that we commonly find here at home.

—Brad Hubley

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THE MAGAZINE OF THE ROYAL ONTARIO MUSEUM

Pitcher Puzzle

A piece of 19th-century presentation silver was sold by a well-known Toronto retailer, but where it was made remains a mystery.

Dear ROM:

I have some wonderful pieces (I think) and since I'm getting on in years, I would like to make sure the next generation is prepared to take care of these things. My first choice is to see them understood (especially where there is family involved—like the jug), loved, and used! The jug was presented to my maternal great-grandfather. It is engraved:

"Presented by the President and Directors of the Bank of Toronto Alexander Smith Esquire as a mark of their appreciation of the faithful and efficient services as Manager of their Peterboro Branch for the last 10 years. / Toronto William Gooderham May 21st, 1870 / President"

I believe it is a Canadian piece. It is quite large—28 cm (11 inches) tall. I use it all the time on my mantelpiece. The maker's mark reads "J.G.J&CO." Any information would be welcome.

J. C.
Lakefield, Ontario

J C

ROSS FOX

Above: Silver jug presented to Alexander Smith on May 21, 1870.

Dear J. C.,

Your pitcher is a piece of presentation silver, and as the inscription indicates, the occasion celebrated was Alexander Smith's retirement in 1870 as manager of the Peterborough branch of the Bank of Toronto. The presenter, William Gooderham, was president both of the Bank of Toronto and of William Gooderham Company, distillers. After Smith left the bank, he entered into a highly successful partnership with Mossom Boyd in the Peterborough-based lumber firm Boyd, Smith & Company, which made both partners wealthy. He died in Quebec in 1877.

The words "J.G.J&CO." on your jug refer to J. G. Joseph & Co., a Toronto retail silversmith. At first glance the marks seem to suggest the pitcher is Canadian made, but that is not necessarily the case. As early as the 1790s,

Above:. Marks of J. G. Joseph & Co. and Richard Kestell Olver.

though more commonly from the 1810s on, the initials or name—sometimes referred to as a "name" mark—on a piece of Canadian silver could represent a retailer, a silversmith, a silver workshop, or later a silver manufacturer. Before then, name marks signified the maker only. By the mid-19th century, name marks more frequently signified a retailer.

This makes identifying the maker of a piece of silver more difficult. Fortunately, pseudo-hallmarks, which were trademarks of a sort, were introduced as substitute maker's marks.

Such symbols usually imitated hallmarks of a type found on British silver. The forms of a monarch's head, leopard's head, "lion passant," anchor, and date letter, were popular. Other marks, such as the beaver on the Smith pitcher, amount to pure invention. Because the marking system in Canada was unregulated, fanciful symbols were permissible.

The Alexander Smith pitcher bears three pseudo-hallmarks: a lion, a crowned woman's head (representing Queen Victoria), and the beaver. We know these marks belong to Toronto silversmith Richard Kestell Olver (c. 1803–after 1874). Olver was one of the few silversmiths in Canada to adopt the beaver as a pseudo-hallmark, even though the animal had become a popular Canadian symbol by the 1840s.

Why Olver's pseudo-hallmarks are on the jug has yet to be explained satisfactorily. It is highly unlikely that he made the pitcher himself; there is no evidence that he ever produced hollowware. It's possible that the marks may represent his role as agent between the manufacturer and J. G. Joseph & Co. or indicate that he headed a silver workshop on the Joseph premises at one time.

Richard Olver (his name is often incorrectly spelled "Oliver") was a native of England. In the Cornish language, Olver means "beacon," and Olver's middle name Kestell is also Cornish, so he likely was a Cornishman.

According to the 1842 Toronto census, Olver had lived in the city for three years. Over the next two decades he was in business primarily on King Street East. Brown's *Toronto General Directory* describes him in 1856 as a "silver spoon & fork manufacturer," as well as a "chemist & druggist." In 1861 and 1862/63 he is listed as a druggist only and the next year as both. In the early 1870s he is listed only as a silversmith, apparently working exclusively in silver in these later years.

For several decades Olver was the major maker of flatware in Toronto and region, supplying a number of retail silversmiths, including J. G. Joseph & Co., James E. Ellis, William Bell, George Ward, James W. Millar, and John Wanless, all of Toronto, and Robert Osborne of Hamilton. A great deal of silver flatware bears Olver's name marks, "R.O." and "RKO," perhaps because he retailed some of his own products.

Olver's countryman, Judah Gershom Joseph (1798–1857), the founder of J. G. Joseph & Co, hailed from Exeter, Devonshire. He arrived in Toronto in 1842 via the United States, where he had lived since 1829. An optician and maker of instruments by training, Joseph operated a retail store in Toronto. After his death in 1857, his son-in-law, Henry (Hyman) Altman and another businessman Thomas H. Lee succeeded to his firm. That's when the name J. G. Joseph & Co. was adopted. Located at 83 King Street East, the firm's focus shifted from eyewear, scientific instruments, and timepieces to the fancy goods trade, though silver and jewellery were always part of the business.

By 1866, the company split into two separate operations. Businessman John F. Lash joined as a third partner in the retail division at 5 King Street East while Altman and Lee owned the wholesale division at 46 Yonge Street.

With this new business arrangement, it seems that the firm may have started making silver. It's likely that from this time on the firm employed a journeyman silversmith or two who worked onsite. Could Olver have been one of them? Numerous newspaper references attest that the Joseph firm had a thriving commerce in presentation silver.

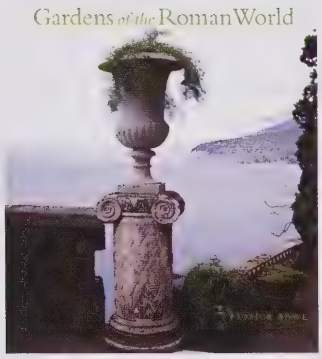
In 1871, John Lash left the partnership, continuing the business on King Street as Lash & Co. until late 1876 or early 1877. Lash & Co. is described in the *Canadian Illustrated News* (June 22, 1872) as "the most extensive jewellery and silversmith's store in the Province of Ontario." No doubt the prestige of the store was comparable two years earlier when, operated by J. G. Joseph & Co., it sold the Alexander Smith pitcher.

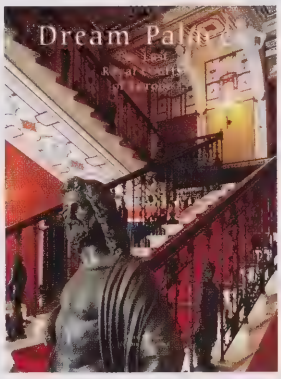
The difficulty in identifying the actual maker of the Smith pitcher reflects the complexity of Canada's silver trade during the third quarter of the 19th century. Most silver wares were furnished by large manufacturers, more likely foreign than Canadian. And following the American Civil War, imports were as likely to come from the United States as from Britain.

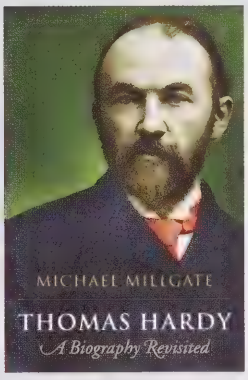
In 1870, only one Canadian manufacturer was capable of producing a piece with chased ornament, which required the hand of a master silver chaser: Robert Hendery of Montreal. But comparable pieces were being made in the United States, and it's possible the pitcher could be American. So, the question of who made the Smith pitcher must remain unanswered for now.

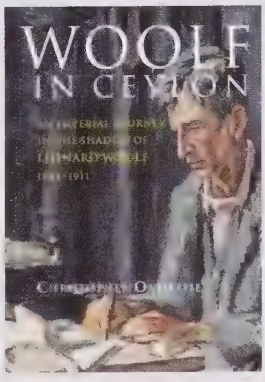
Ross Fox is associate curator of Canadian Historical Decorative Arts in the ROM's Department of World Cultures.

Ancient Rome to Old Ceylon









Gardens of the Roman World

Patrick Bowe
(The J. Paul Getty Museum, Cloth: $77.50)

Influenced by the gardens of Egypt and Greece, the ancient Romans disseminated their designs throughout the Roman Empire and, through time, to the present day, the gardens of the J. Paul Getty Museum in Malibu, California, an iconic example. Horticultural historian Bowe conducts a guided tour of the historic gardens-among-ruins and illuminates numerous frescoes and mosaics from the classical world exhibiting a variety of botanical configurations. A Carthaginian mosaic in the Bardo Museum, Tunis, for instance, depicts a pomegranate orchard. A cycle of frescoes from the House of Livia, at Prima Porta, currently in the Terme Museum in Rome, illustrates a lush garden along with a wealth of associated flora and fauna. Bowe reveals as well the essential design differences between urban and country villa garden sanctuaries and tends to feature gardens of the Roman emperors, especially those of Hadrian. Prominent among many, perhaps most, of the gardens shown is an extensive use of statuary, usually of Roman gods and goddesses. Water is also frequently present, as pools or fountains, or as ocean vistas to be viewed through leafy and floral portals. Bowe touches also on botanical archaeology, the excavation and analysis of plant remnants in the soil, as a guide to the gardens of antiquity.

Dream Palaces: The Last Royal Courts of Europe

Marc Walter, Jérôme Coignard
(Vendome, Cloth: $97.50)

A dazzling display of romantic whimsy, *Dream Palaces* showcases the architectural jewels commissioned by 19th-century European royal courts. Extravagant, fanciful, sumptuous, the residences are imbued by nostalgia for a storied past, whether that of medieval chivalry, Teutonic legend, or classical mythology. The edifices featured include Pena Palace (Portugal, 1840–1885); Miramare Castle (Italy, 1857–1860); Pierrefonds Castle (France, 1857–1870); Neuschwanstein Castle (Germany, 1869–1892); and Achilleon Villa (Greece, 1887–1891). A passage to a vanished world, touched by magic.

Thomas Hardy: A Biography Revisited

Michael Millgate
(Oxford, Cloth: $69.95)

The great English Victorian novelist Thomas Hardy, creator of *Tess of the D'Urbervilles*, *Return of the Native*, and *The Mayor of Casterbridge*, comes to life in this exhaustive study by Hardy scholar Millgate. Hardy aficionados will especially be interested in his identifying the models for numerous of the novelist's fictional characters–a handsome and charming (but improvident) military uncle who was the basis for Sergeant Troy (and who eventually emigrated to Guelph, Ontario); an aunt who was the inspiration for Bathsheba Everdene *(Far from the Madding Crowd)*; and a serving girl, socially ostracized by virtue of her pregnancy out of wedlock, who was a model for Tess Derbyfield. There are other parallels as well between the novelist's real and fictional worlds: the young Hardy, like Jude Fawley *(Jude the Obscure)*, laboured "in solitude at Latin and Greek in the cherished but elusive hope of eventually going to university."

Because of Hardy's long life span (1840–1928), we also catch glimpses

SELECTED AND REVIEWED BY GLEN ELLIS

of "evolving" technologies in the English West Country—farm carts and wagons superseded by automobiles and trucks (with bicycles and motorcycles appearing along the way). At one point, neighbour T. E. Lawrence (of Arabia) gives Mrs. Hardy a ride in his motorcycle sidecar. Predictably, the novelist swipes at technological intrusions into the Wessex landscape, trashing, for example, a steam-driven threshing machine whose itinerant master is "as if in some ancient doom compelled to wander against his will." Millgate also sheds light on Hardy's amorous infatuations with several (mostly younger) women.

Stung by negative reviews of *Jude*, and financed for the long term by his royalties, Hardy abandoned novel-writing after 1895 for poetry, becoming a major English poet in the subsequent decades. His ashes were interred in Westminster Abbey; his heart was buried in the family plot in Stinsford churchyard outside Dorchester.

A thoroughly researched, substantially updated revision of Millgate's earlier, definitive Hardy biography. A fine tale, finely told.

Woolf in Ceylon: An Imperial Journey in the Shadow of Leonard Woolf, 1904–1911

Sir Christopher Ondaatje
(HarperCollins, Cloth: $39.95)

Sir Christopher's Royal Ontario Museum South Asian Gallery exhibits South Asian contributions to global culture and explores cultural diversity through items of personal adornment. A prolific author, especially in the field of literary history, Ondaatje recently returned to Sri Lanka, his birthplace, to follow in the footsteps of Bloomsbury co-founder Woolf, posted to Ceylon as a British diplomat a century ago. His journey reveals Woolf's world—Ceylon at the onset of the twilight of the British Empire—and the changes that a century have wrought. These contrasts are parallelled by many similarities in Woolf's and Ondaatje's lives.

Ondaatje is a master of the historical travelogue, skillfully employing word and image to evoke place through the passage of time. So successful is his technique, we are transported to the sights, sounds, and scents—the very substance and texture of time passed. The new photography is striking, not only for its revelation of present-day Sri Lanka, but also for its palette: brilliant, intense, and kaleidoscopic. The archival photos, in sepia tones, conjure "Old Ceylon" and the nostalgia felt by the author for some of the aspects of an earlier time. Like Woolf, Ondaatje was formerly a book publisher, and his books are always finely crafted, even incorporating linen covers on the boards, literally "cloth binding." The trim size (7 5/16 x 10 7/16) is unorthodox and oversized for a book of this nature—and it works spectacularly. A haunting, evocative memoir.

Glen Ellis is head of Publications, Royal Ontario Museum.

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Déco Lalique: Creator to Consumer

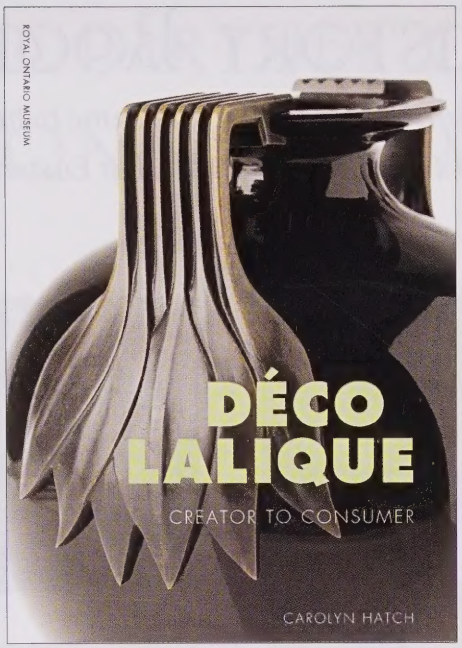
Carolyn Hatch
(ROM, Paper: $29.95)

In December of 2005, the Royal Ontario Museum will exhibit classic and elegant glass creations from its collection of art by René Lalique, the premier collection of Lalique glass in Canada.

The French modern movement, and the art of French designers such as Lalique, had a significant impact on the course of Canadian high society and culture in the interwar period of 1919–1939. After the *Paris Exposition des Arts Décoratifs et Industrielles Modernes* in the summer of 1925 (from which the term Art Deco was later coined), Lalique glass and other French decorative arts were imported by pioneering gift shops and department stores such as the T. Eaton Company; prominently displayed in their stores as art objects; advertised in Canadian home design magazines, newspapers, and retail sales catalogues; and purchased by Canadian consumers.

Resourcing the ROM's rich collection of Lalique glass, Carolyn Hatch explores the roots of the French modern movement, the prodigious career of René Lalique (whose works are examined in a new and innovative light), and the powerful influence of modernism and Lalique in Canada through the 1920s and 1930s.

Carolyn Hatch holds a B.A. in History from the Memorial University of Newfoundland and an M.A. in Museum Studies from the University of Toronto. She is the Collections Technician for the Ethnology section of the World Cultures Department at the ROM.



Korea Around 1900: The Paintings of Gisan

Christina Hee-Yeon Han
(ROM, Paper: $29.95)

In December of 2005, the ROM will also exhibit paintings by Gisan, a genre and landscape painter, who documented Korean daily life in the late 19th century. Born in the mid-1800s, towards the end of Korea's last dynasty, he worked principally in several central port cities that saw lively trade of goods from Japan, China, and the West. His output was prolific; works attributed to him number at least a thousand. Although primarily a genre painter, he also produced evocative landscapes.

The 27 Gisan paintings in the Royal Ontario Museum are attributed to the artist on the basis of their style. The ROM paintings are exceptional in the artist's opus for their very large size. They are accompanied by 23 Gisan paintings from the National Museum of Ethnology in Leiden, Holland.

Christina Hee-Yeon Han places Gisan in the context of late 19th-century Korean society and the tradition of Korea genre painting. She also illuminates how the ROM paintings, likely commissioned by a Canadian missionary, may have been used in Canada around 1900 when Korea was little known to the Western world.

Christina Hee-Yeon Han, an academic advisor for the ROM's Korea Gallery and a guest curator for the exhibition, is currently a doctoral candidate in the University of Toronto's Department of East Asian Studies. Her Ph.D. research focuses on a comparative study of Korean and Chinese landscape tradition and literati culture.

Book Awards Update

Journey to the Ice Age, ROM Curator Emeritus Peter L. Storck's archaeological memoir, was recently awarded the Champlain Society's Chalmers Award in a ceremony at Toronto City Archives. The award recognizes the best book about Ontario history published in the previous year. Congratulations to Dr. Storck on this latest honour.

History Books

A fine Chinese collection came to have a home in the ROM's H. H. Mu Far Eastern Library.

ROM ARCHIVES

IMAGINE Bishop William Charles White's excitement when he learned of a stupendous collection of Chinese classic books of art, science, and literature—all in traditional Chinese bindings and cases—that had come up for sale in Beijing. A secretary to the German Legation in China named Mu Xuexun (or Mu Hsüeh Hsün) had spent years assembling the collection, which included Ming dynasty manuscripts. After Mu's death in 1929, his family—with the stipulation that the collection be kept intact in an institution of higher learning as a memorial to their father—offered it at a reduced rate to Bishop White.

White (1873–1960) who was the Anglican Bishop to the See of Henan province in China from 1909 to 1934, saw the collection as a key to fulfilling his dream of opening a centre for Chinese studies at the ROM. He approached three prominent ROM benefactors—Dr. Sigmund Samuel, Sir Robert Mond, and Dr. J. C. Ferguson—for support. The Bishop himself contributed $10,000. White also found a suitable home for the Mu Collection. An annex was added to the original ROM building and on its third floor were a library and offices for the new Department of Chinese Studies.

The photo (above left) shows the H. H. Mu Chinese Library when it opened in 1937. The plaque was presented to Bishop White in 1919 by the General and Governor of Henan province. The tao (cases holding the books) of the Mu Xuexun Collection are displayed on metal shelving. Stairs led to a mezzanine gallery of Chinese art (above right).

Today, the H. H. Mu Far Eastern Library, with close to 40,000 volumes, is one of the leading Oriental art libraries in North America.

JACK HOWARD

Jack Howard is librarian of the ROM's H. H. Mu Far Eastern Library.

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